

TB CARE I ANNUAL REPORT YEAR 3

Molière

Paul
Laurence
Dunbar

Takuboku
Ishikawa

D. H
Lawrence

Emily
Brontë

John
Keats

Franz
Kafka

Voltaire

Manuel
Bandeira

Baruch
Spinoza

George
Orwell

Saima
Harmaja

Anton
Chekov



USAID
FROM THE AMERICAN PEOPLE

TB CARE I



YEAR 3 ANNUAL REPORT

October 1, 2012 – September 30, 2013

Published: November 15th, 2013

Cover Page

The cover of this report shows a small fraction of the literary greats the world has lost to TB.

Poet John Keats was among their number. Precisely when John Keats acquired TB is unknown, but the poet's family lost not only John, but also his mother, his uncle and his two brothers, Tom and George, to the disease.

In a letter to Charles Brown on the 30th September 1820 Keats wrote:

"Is there another life? Shall I awake and find all this a dream? There must be, we cannot be created for this sort of suffering"

At the beginning of 1821 Keats was seriously ill, he was sweating and coughing up blood and his caregiver described in a letter how he would sometimes cry upon waking to find himself still alive.

He died on the 23rd February 1821 at the age of only 25.



TB CARE | PARTNERS

American Thoracic Society (ATS)

FHI 360

Japan Anti-Tuberculosis Association (JATA)

KNCV Tuberculosis Foundation (KNCV)

Management Sciences for Health (MSH)

International Union Against Tuberculosis and Lung Disease (The Union)

World Health Organization (WHO)

ABBREVIATIONS

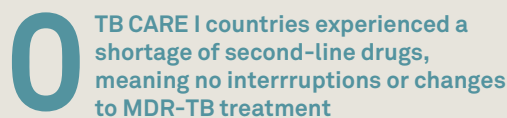
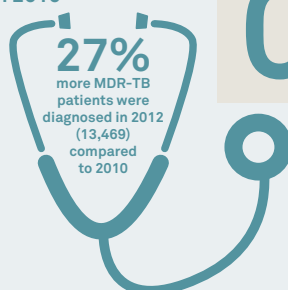
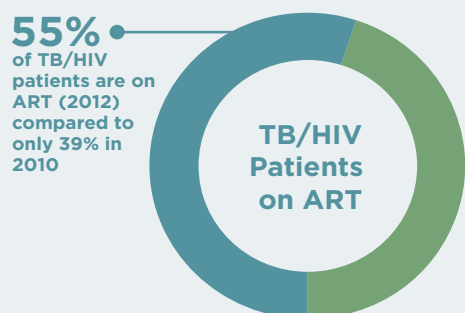
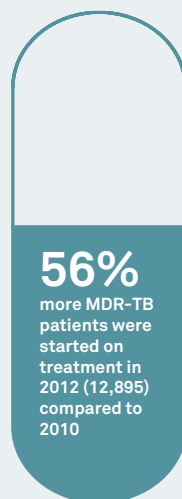
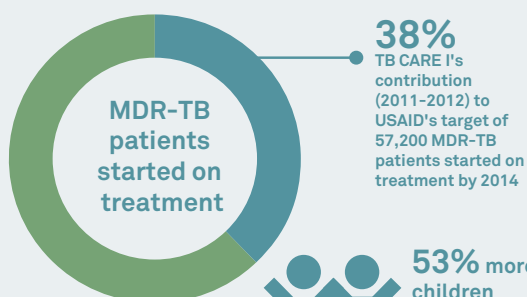
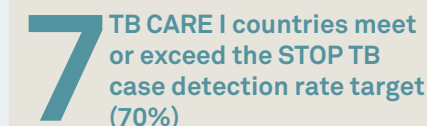
ART	Antiretroviral therapy
CAR	Central Asian Republics
CCM	Country Coordinating Mechanism
CDC	Center for Disease Control and Prevention
CoE	Center of Excellence
CDR	Case Detection Rate
CPT	Cotrimoxazole Preventive Therapy
CSO	Civil Society Organization
DOT	Directly Observed Treatment
DOTS	Directly Observed Treatment Short Course
DR	Drug Resistance
DST	Drug Susceptibility Testing
ECSA	East, Central and Southern Africa
EQA	External Quality Assurance
ERR	Electronic Recording & Reporting
FLD	First Line Drug
GDF	Global Drug Facility
GLC	Green Light Committee
GLI	Global Laboratory Initiative
HR	Human Resources
HSS	Health System Strengthening
IC	Infection Control
ICT	Information, Communication and Technology
IPC	Infection Prevention and Control
JATA	Japan Anti Tuberculosis Association
KANCO	Kenya AIDS NGOs Consortium
KNCV	KNCV Tuberculosis Foundation
MDR	Multi Drug Resistance
MDR-TB	Multi Drug Resistant Tuberculosis
M&E	Monitoring and Evaluation
MoH	Ministry of Health
MSH	Management Sciences for Health
NAP	National AIDS Program
NGO	Non Governmental Organization
NTP	National TB Program
NRL	National Reference Laboratory
NTRL	National Tuberculosis Reference Laboratory (Uganda)
OP	Outpatient
OR	Operations Research
PCA	Patient-Centered Approach
PMDT	Programmatic Management of Drug-resistant Tuberculosis
PMU	Program Management Unit
PPM	Private Public Mix
PPP	Public Private Partnership
RIF	Rifampacin
SLD	Second Line Drug
SRL	Supra-National Reference Laboratory
SRLN	Supra-National Reference Laboratory Network
SOP	Standard Operating Procedures
SS+	Sputum Smear positive
SS-	Sputum Smear negative
TA	Technical Assistance
TB	Tuberculosis
TB CAP	Tuberculosis Control Assistance Program
TBCTA	Tuberculosis Coalition for Technical Assistance
TB-IC	Tuberculosis Infection Control
USAID	United States Agency for International Development
UA	Universal and Early Access
WHO	World Health Organization
XDR-TB	Extensively Drug-Resistant Tuberculosis

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EXECUTIVE SUMMARY

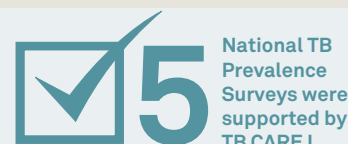
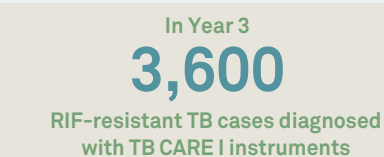
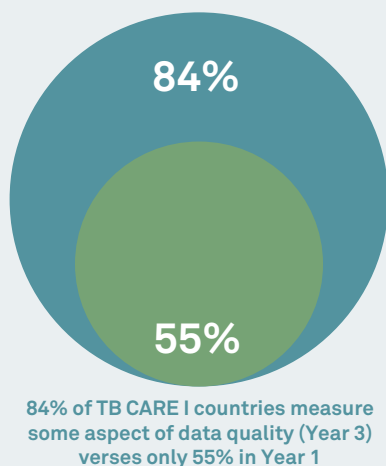
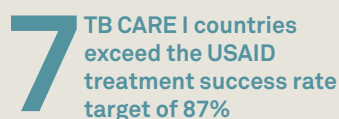
TB CARE I has achieved impressive results after only three years of implementation (October 2010- September 2013). This report provides a summary of the program's contributions towards the United States Agency for International Development's (USAID) targets and expected outcomes, as well as results achieved to date through 35 new core projects, five regional projects and 19 country projects. This page and the next provide a snapshot of some of the most notable results to which the program has contributed.



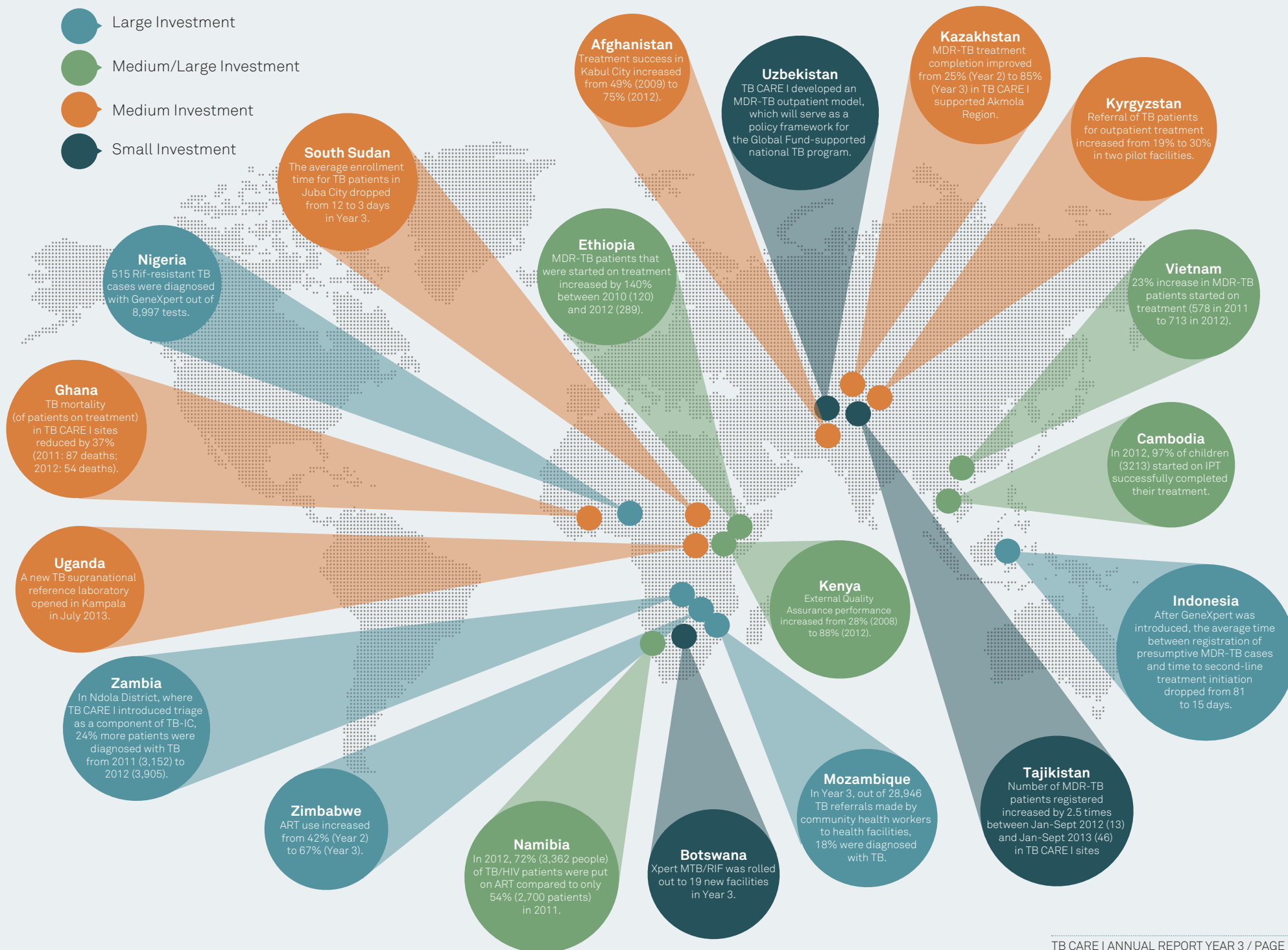
78 GeneXpert Machines Operational



1 New Supranational Reference Laboratory



- Large Investment
- Medium/Large Investment
- Medium Investment
- Small Investment



INTRODUCTION

TB CARE I is a USAID five-year cooperative agreement (2010-2015) that builds and expands upon previous USAID TB prevention and treatment efforts over the last eleven years. TB CARE I is one of the main global mechanisms for implementing USAID's TB strategy as well as contributing to TB/HIV activities under the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). KNCV Tuberculosis Foundation (KNCV) is the prime partner and the collaborating partners are American Thoracic Society (ATS), FHI 360, International Union Against Tuberculosis and Lung Disease (The Union), Japan Anti-Tuberculosis Association (JATA), Management Sciences for Health (MSH) and the World Health Organization (WHO).

There is a second program, TB CARE II, which shares the same objectives, technical strategies and indicators as TB CARE I.

The TB CARE program focuses on eight priority Technical Areas:

1. Universal and Early Access
2. Laboratories
3. Infection Control (IC)
4. Programmatic Management of Drug Resistant TB (PMDT)
5. TB/HIV
6. Health Systems Strengthening
7. Monitoring & Evaluation (M&E), Operations Research (OR) and Surveillance
8. Drug Supply and Management

More information on the program can be found at www.tbcare1.org.

In Year 3 (October 2012-September 2013), five regional projects, 35 new core projects and 19 country projects were implemented (Djibouti and Dominican Republic closed out at the beginning of Year 3¹). This TB CARE I Year 3 Annual Report demonstrates the program's contribution to USAID's global targets, highlights key results across all technical areas, and summarizes where the program is going in Year 4. Whenever possible, country-level data were extracted from the *WHO Global TB Report 2013*; otherwise national data were collected by TB CARE I from NTPs or other appropriate data sources (i.e. National AIDS Program (NAP), prison system). Additional details on country achievements and country-specific indicators can be found in the country-specific annual reports.

1. As TB CARE I closed in Djibouti and Dominican Republic at the beginning of Year 3, programmatic Year 3 data were not collected for these countries. However, 2012 population/patient-based data (from WHO) are shown as these projects were operational during this time period.

CONTRIBUTION TO USAID TARGETS²

USAID's goal is to halve TB prevalence and death rates in USAID assisted countries by 2015 (relative to the 1990 baseline) and is consistent with the Global Plan to STOP TB. Three key targets have been identified for achieving this goal:

- Sustain or exceed 84% case detection rate and 87% treatment success rate of those cases in countries with established USAID TB programs;
- Treat successfully 2,550,000 new smear-positive TB cases;
- Diagnose and initiate treatment for 57,200 new cases of MDR-TB.

TB CARE I's contribution to USAID targets is measured through the following core indicators at the national level as reported in the annual WHO Global TB Report:

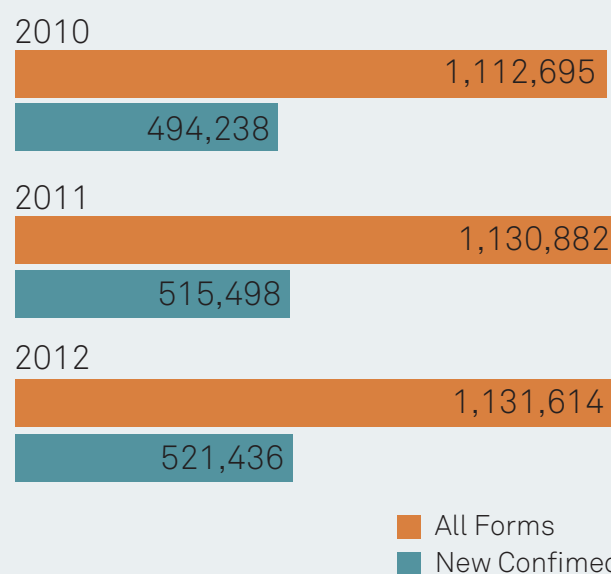
1. Number of cases notified (all forms and new confirmed)
2. Case detection rate
3. Treatment success rate
4. Number (and percent) of confirmed TB cases among healthcare workers (HCWs)
5. Number of MDR cases diagnosed and put on treatment

CASE NOTIFICATION

In 2012, over 1.1 million TB cases (all forms) and 521,436 new laboratory-confirmed cases of TB were reported to the WHO across all TB CARE I countries (Figure 1). This indicates a slight increase over baseline 2010 levels (2% increase for all forms and 6% increase for new confirmed cases), but in general the notification rate (per 100,000) is leveling off across TB CARE I countries. This is consistent with the global progress of a decreasing trend in incidence rates in most regions³. However, in order to push beyond the slow downward trend, TB CARE I and NTPs need to continue looking for innovative approaches to find the so-called 'missed' cases. Countries that continue to show noted progress when comparing new confirmed cases notified between 2012 to 2010 are Nigeria (17% increase), South Sudan (11% increase since 2011), Indonesia (10% increase), and Uganda (6% increase). In 2012, a greater percentage of new confirmed cases were female (47%) compared to only 42% in 2011, though

there continues to be wide gender variation by country with Viet Nam reporting 25% of cases being women and Afghanistan reporting 67% of cases as female.

Figure 1: Number of cases notified (WHO 2013)

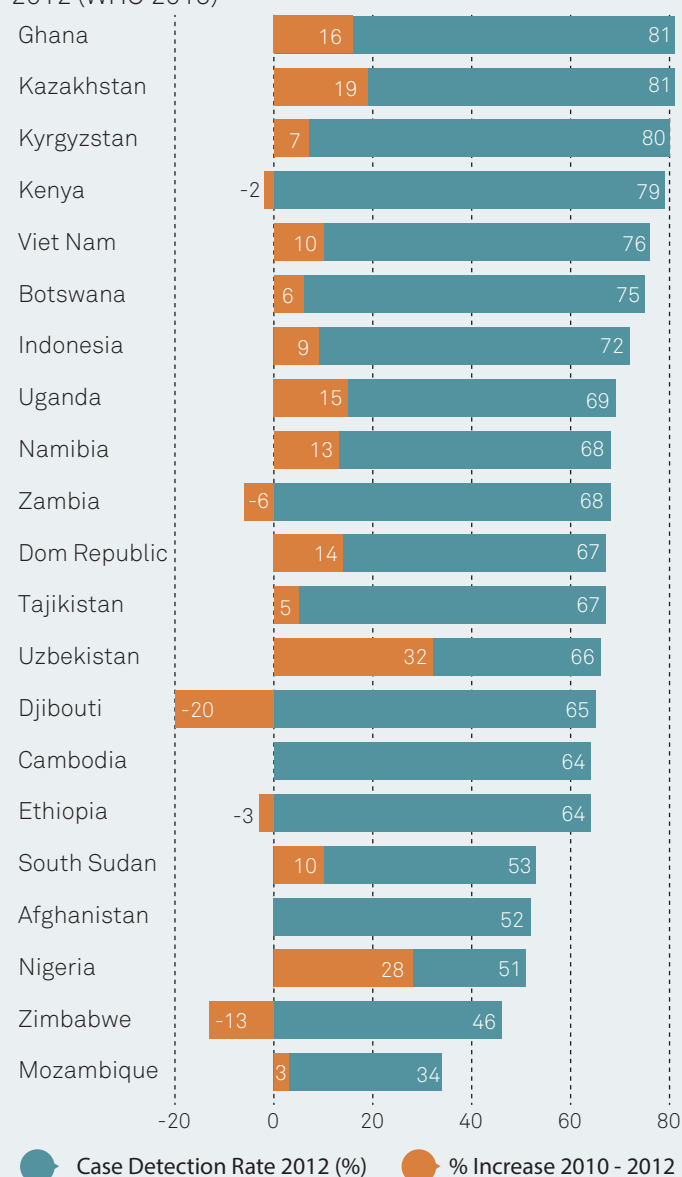


2. TB CARE I is assisting NTPs to improve the prevention and control of TB from a country perspective; in addition to in-country resources (government funding, etc.), countries are often also assisted through other means such as the Global Fund (GF). Therefore it is difficult to measure to what extent changes in these indicators are attributable only to TB CARE I interventions. In some countries TB CARE I operates on a selected range of technical areas and the geographic area is not always country-wide. The technical area indicators (see Section 4) can help to tease out TB CARE I's impact in specific areas.

3. Countdown to 2015, Global Tuberculosis Report 2013, WHO

CASE DETECTION RATE (CDR)

Figure 2: Case detection rate (percent), all forms, 2010-2012 (WHO 2013)



*Percentage change measured between 2011 and 2012 for South Sudan

Case detection rates increased in 15 TB CARE I countries in 2012 (Table 1). Seven countries are above the Stop TB 70% CDR target, although no countries are currently meeting the USAID target of 84% CDR. Kazakhstan's increase from 62% in 2011 to 81% in 2012 is notable while the largest increase since 2011 was observed in Nigeria (27% increase).



Refurbished Sputum Booth - Mulago Hospital, Uganda
Credit: Tristan Bayly

TREATMENT SUCCESS RATE

TB CARE I countries continue to improve the successful treatment of sputum smear positive (SS+) TB patients (Figure 3). In 2011, 15 TB CARE I countries either maintained or improved upon the Treatment Success Rate (TSR) of the previous year. The treatment of 861,406 SS+ patients from 2010-2011 cohorts translates to a 34% achievement of the 2014 USAID target (2.55 million over five years)⁴. Seven countries exceed the USAID target of 87% with Ethiopia and Zambia reaching or surpassing the target in 2011.

Two additional countries are above the Stop TB target of 85% (see Supporting Data).

Figure 4 illustrates TB CARE I country status towards achieving both USAID (84% CDR and 87% TSR) and STOP TB (70% CDR and 85% TSR) targets. Considerable progress is still needed to achieve the ambitious targets of USAID, but in general, TB CARE I countries are moving in the right direction.

⁴ Although TB CARE I didn't start until October 2010, many patients who started treatment in 2010 were being managed and supported with TB CARE I support during the course of their six-month treatment period.

Figure 3: Treatment Success Rate (TSR) and number of successfully treated* smear-positive TB cases, 2009-2011 (WHO 2013)



*Successfully treated includes smear-positive (SS+) cases that have been cured and those that have completed treatment

Figure 4: Comparison of TB CARE I countries' case detection rates (2012) and treatment success rates (2011) to USAID and STOP TB targets* (WHO 2013)



* Mozambique is not displayed as no TSR is available for 2011 (CDR: 34%).

NUMBER OF CONFIRMED TB CASES AMONG HEALTHCARE WORKERS

TB CARE I pioneered and made this a core indicator for measuring and monitoring the effectiveness of infection control (IC). The systematic reporting of healthcare workers (HCWs) with TB (all forms) continues to be a challenge in most countries. Eight TB CARE I countries (Botswana, Ghana, Kazakhstan, Kenya, Kyrgyzstan, Mozambique, Tajikistan and Uzbekistan) have reported HCWs with TB

disease to WHO totaling only 618 reported cases in 2012 (compared to 347 in 2010 and 391 in 2011). Of these eight countries, only Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Kenya also reported the denominator to calculate the rate (see [Supporting Data](#) for more detail). Numbers are low due to underreporting.

NUMBER OF MDR-TB CASES DIAGNOSED AND PUT ON TREATMENT

In 2012, 13,469 patients were diagnosed with MDR-TB (laboratory confirmed) which represents an increase of 7% on the previous year and 27% on the baseline of 2010 (Figure 5). Also in 2012, 12,895 patients started on MDR-TB treatment, which is a 45% increase from the previous year and a 56% increase from baseline (2010). A positive trend is that the gap between numbers of patients started on treatment compared to the number diagnosed, decreased from 29% in 2011 to 4% in 2012. The data on number of cases starting MDR-TB treatment do not distinguish cases newly diagnosed with MDR-TB during 2012 from cases diagnosed and on the waiting list for treatment since before 2012. The latter number can be significant in countries starting-up on MDR-TB treatment provision, and explains why in some countries this number is higher than the number diagnosed during the year. Against the USAID target of 57,200 patients diagnosed and started on treatment for MDR-TB by 2014, TB CARE I countries contributed a total of 21,806 patients or 38% in the first two years of its operations (2011-2012).

A significant increase in diagnosis of MDR-TB is attributable to the introduction of GeneXpert MTB/RIF (Xpert) in 11 TB CARE I supported countries, which contributed to the diagnosis of 3,623 Xpert Rifampicin Resistant patients (see page 23 for more information on Xpert).

The Central Asian Republic (CAR) countries contribute a significant portion of the number of MDR-TB patients diagnosed (78%) across all

TB CARE I countries. Kazakhstan alone makes up 56% of the cases in TB CARE I countries, which is down from 70% of all MDR-TB cases diagnosed in TB CARE I countries in 2010. This indicates that diagnosis is accelerating in other TB CARE I countries.

Almost all countries reported significant increases in patients started on MDR-TB treatment, with Zambia reporting for the first time in its history (79 patients). No patients were reported from South Sudan, where MDR-TB treatment has not yet started.

Figure 5: Number of MDR-TB patients diagnosed (confirmed) and started treatment for MDR-TB (unconfirmed and confirmed) (WHO 2013) *



*86% of MDR-TB patients started on treatment were confirmed patients (11,111) in 2012.



Health Care Worker and TB Patient - Nigeria Credit: Tristan Bayly

TB CARE I TECHNICAL AREAS

TB CARE I currently implements projects in 19 countries. A small one-year project is also being implemented in Senegal, but does not have full-time staff or activities on the ground so is not included in the annual data analyses. Dominican Republic and Djibouti officially ended in Year 2, although some small activities continue in Djibouti through carryover funds and regional funding. TB CARE I's work spans multiple continents and contributes to improved TB diagnosis, treatment and care for the more than 874 million people living in the countries where the program works. The program operates in ten countries at the national level, while in the remaining eleven countries the program supports the national level as well as specifically assigned geographic areas or pilot zones. Across the

19 TB CARE I countries, roughly 61% of the population lives in TB CARE I-supported geographic areas. With projects in 11 African countries, 69% (\$45.8 million) of TB CARE I's Year 3 country obligations are in Africa, while 31% (\$20.7 million) of obligations are directed to eight Asian countries.

In the following subsections, Year 3 results will be discussed by technical area. Several indicators use WHO-collected data from the *WHO Global TB Report 2013*. Achievements and results from country, core and regional projects are also highlighted. More detail on country-level activities and results can be found in the [Supporting Data](#) section and in country-specific Annual Reports.

UNIVERSAL AND EARLY ACCESS

OUR AIM

1. To increase the demand for and use of high quality TB services and improve satisfaction with the services provided
2. To increase the quality of TB services delivered by all care providers
3. To reduce patient and service delivery delays

- 19 TB CARE I Countries Work on Universal Access
- 5 New Core Projects
- 5,726 People Trained in Year 3 (3,437 Males/2,299 Females)

PATIENT CENTERED APPROACH

The patient centered approach (PCA) package was developed under TB CAP and includes a strategy with five tools to help countries become more patient centered. The following tools (all available on the TB CARE I website) are included in the package: Patients Charter for TB Care and Control, QUOTE TB Light, Tool to Estimate Patient Costs, TB/HIV Literacy Toolkit and a Practical Guide to Improve Quality of TB Services.

TB CARE I implemented a core project to pilot the package and evaluate change towards improved patient centeredness in five countries: Cambodia, Indonesia, Mozambique, Nigeria and Zambia. Year 3 marked the final phase of the project with endline data collection in four of these five countries.

Quote TB Light measures the quality of services from the patient's perspective. This tool was implemented in six TB CARE I countries in Year 3 (in a total of 130 health facilities, see Supporting Data). From the baseline and end line data three major

quality of care issues emerged across the participating countries: i) communication and information; ii) availability of the health care provider and iii) affordability.

Across the PCA pilot countries, the most important source of information regarding TB was clearly the health center. This underscores the crucial role health care providers have to ensure patients understand TB illness, how it will affect their lives and the importance of staying on treatment. At baseline the level of knowledge regarding TB basics was reported as being good; however there was still room for improvement. For example, the majority of the patient respondents in Nigeria (92%) could not explain modes of transmission and more than 40% in Cambodia did not understand the importance of staying on treatment. In Mozambique, where TB/HIV prevalence is high, most respondents could not explain the relationship between TB and HIV.

The Patients Charter was also introduced in PCA pilot countries as well as non-pilot

countries. In Year 3, seven countries trained health facility personnel on the Charter compared to only four countries in Year 2.

Preliminary results from the PCA pilot show that there was a significant increase in awareness of the Patient's Charter. At baseline awareness of the Charter ranged from 0% to about 5% of the TB patient respondents—at endline, awareness had increased to 10% in Zambia and to 35% in Indonesia.



Patient's Charter Workshop - Indonesia

CHILDHOOD TB

TB CARE I recognizes that the diagnosis and treatment of TB in children is a major challenge and priority. In the third year of the program, TB CARE I has been working in Afghanistan, Cambodia, Ethiopia, Ghana, Indonesia, Kazakhstan, Kenya, Kyrgyzstan, Mozambique, Namibia, Nigeria, Tajikistan, South Sudan, Viet Nam and Zimbabwe (79% of TB CARE I countries) to improve the management of TB in children.

There is a steady increase in the number of countries establishing and scaling up a comprehensive approach towards TB in children. Among the 11 countries where TB CARE I has made moderate to substantial investments in addressing TB in children, 10 (91%) countries have ensured that pediatric TB is an integral part of the national strategic plan and regular activities in Year 3, compared to only six countries in Year 2. Specifically, the development of guidelines and training materials has proven to be quite effective in helping countries get to the next level of diagnosing TB in children. This investment may have also contributed to a steady increase of children diagnosed with TB (aged 0-14). Between 2010 (baseline) and 2012 (Year 2), 53% more children were diagnosed across

all TB CARE I countries (75,620). For example, Nigeria achieved an increase of over 4,000 cases diagnosed—in 2011 1,107 cases were diagnosed compared to 5,877 in 2012.

In Viet Nam, a new strategy on TB management in children has been piloted successfully in four provinces with a total of 35 districts and 611 communes engaged. In Year 3, 1,480 health care staff were trained on the implementation of the new strategy. Between October 2012-June 2013, 2,808 children having close contact with SS+ cases were screened and registered; 213 (8%) pediatric patients with TB were detected. With the success of this new strategy, the NTP has decided to use funds from the Global Fund to expand this strategy to 21 provinces in 2013 and 2014.

In Kyrgyzstan treatment of children with DR-TB was overlooked for years, but was brought to the attention of decision makers by the efforts of TB CARE I specialists. As a result, the Guidelines on Management of DR-TB in children were developed and approved by the MoH in December 2012. These guidelines were introduced nationwide by TB CARE I-supported trainings during Year 3.

COMMUNITY DOTS

TB CARE I continues to make significant investments in Community DOTS (CB DOTS) activities at various levels, making use (through sub-contracting) of a range of local NGOs working in the field of TB and HIV close to the community. At least eight countries received support in Year 3—Afghanistan, Botswana, Ethiopia, Mozambique, Namibia, Nigeria, South Sudan and Zambia. Most of these countries have successfully moved past the pilot phase of CB DOTS, increased coverage of the population and built the cadre and capacity of Community Health Workers (CHWs) needed to deliver TB care.

In Afghanistan, CB DOTS was expanded from four provinces to all 13 TB CARE I provinces. In Year 3, a total of over 7,949 presumptive TB cases were identified and referred to health facilities by CHWs. This makes up 17% of all presumptive TB cases identified in all 13 provinces. Of these presumptive TB cases, 609 (7%) were diagnosed with SS+ TB. Moreover, an assessment demonstrated the important role CHWs play in the provision of TB services. The TSR was 98% for those patients that received their DOT from CHWs compared to 91% treatment success rate for those TB patients who received their DOT from health facilities.

CB DOTS expansion continues to be a core strategy for the TB program in Mozambique. During Year 3, TB CARE I supported the expansion to five new districts in three provinces. TB CARE I is now supporting CB DOTS in 50 districts (out of 128 total districts). The success of TB CARE I's investment in CB DOTS can be seen from the number of presumptive TB referrals to health facilities—in Year 3, 28,946 referrals were made of which 3,645 (13%) were TB SS+, 1,215 (4%) were SS-, and 313 (1%) were extrapulmonary cases. Out of the 3,645 SS+ cases, 1,021 were HIV-positive; representing a co-infection rate of 29%. Nevertheless, while in Mozambique treatment outcomes are on target, case detection still needs more attention. TB CARE I-Mozambique leverages its CB DOTS volunteers through its integrated approach to TB and Malaria. TB CARE I-trained CHW were actively referring malaria cases to health facilities. In Year 3, a total of 41,514 individuals with malaria symptoms were referred for diagnosis and 23,432 (56%) of them were positively diagnosed as having active malaria and put on treatment.



Scouts for community mobilization in Yei River County - South Sudan

SPOTLIGHT ON URBAN DOTS

Afghanistan: The Urban DOTS implementation in densely populated areas of Kabul led to improved access to TB services. For example, the DOTS coverage rose by 66% from 20% in 2009. Also, notification of all forms of TB cases improved by 76% in 2013 (3,400) compared to the 2009 baseline (1,934). More importantly, TSR improved remarkably from 49% in 2009 to 75% in 2012 and the sputum conversion rate from 46% to 76%.

Ethiopia: Urban slum areas, where the TB burden is high, are being addressed through the engagement of Civil Society Organizations (CSOs). Two CSOs in Addis Ababa (a women's association and an association of people

living with HIV/AIDS (PLHIV)) were trained on the basics of TB. These CSOs are now identifying and referring TB suspects, raising awareness on TB and providing treatment adherence support during their house visits and community conversation sessions.

South Sudan: Data has shown that Juba accounts for over 40% of all patients and defaulters in South Sudan. Through the support of the Global Fund and the project, a pilot urban DOTS program has been initiated where community mobilizers have been trained on follow up of patients on adherence to TB treatment. The impact of the intervention will be measured by April 2014.

OUTPATIENT CARE

Ambulatory care, or outpatient (OP) care, for TB and MDR-TB is being explored and scaled up in six TB CARE I countries (Ethiopia, Indonesia and all four CAR countries). In Kazakhstan, TB CARE I has been working in the Akmola Region to develop and scale up an outpatient care model for TB treatment. In comparison with 10% coverage last year, 23% of TB patients (including children) were put on OP care in Akmola Region in Year 3. This approach has already been recognized and utilized at the national level. The MoH has mandated the administration of OP care nationwide for the first time, using the admission criteria developed by TB CARE I for Akmola Region.

In Kyrgyzstan, TB CARE I and the NTP began piloting an OP care program in two Bishkek health facilities in April 2013. By the end of Year 3, the referral of TB patients for OP treatment increased from 19% to 30% in these two facilities. With support from TB CARE I in Uzbekistan, a national policy on OP TB care was developed and included into a consolidated order on TB control. It was the first time that a detailed model of psycho-social patient support for TB patients was described in such a high-level document and it creates a legislative basis for improvement of psycho-social services in TB services.



A training session on organizing TB outpatient treatment - Kyrgyzstan



The deputy chief doctor and M&E specialist discuss the recording and reporting of outpatient care - Kazakhstan

PUBLIC PRIVATE MIX AND INCREASING CASE DETECTION

TB CARE I has been implementing Public Private Mix (PPM) activities in Cambodia, Indonesia, Kenya, Namibia and Nigeria. In Indonesia, the project supported the establishment of PPM teams in 25 districts located in seven provinces.

The objective of these PPM teams is to improve coordination and ensure networking between provincial health services, hospitals, private providers, professional societies, prison department, laboratories, workplaces, etc. An increased number of TB patients were notified in public and private hospitals in four project supported provinces. This contributed to 13,434 (13%) out of 104,515 cases notified in 2012. The project also intensified TA to expand implementation of the *International Standards for Tuberculosis Care* (ISTC) by engaging a total of 97 pulmonologists in 61 private hospitals across three provinces. Starting from 2010 through June 2013, some 4,118 (42%) were additionally notified out of a total of 7,986 TB cases reported to the NTP. Moreover, 269 private providers are collaborating and notifying cases to the NTP.

In Ghana, following the implementation of SOPs for intensified TB case detection in six pilot hospitals, 46% more cases were

diagnosed in 2012 (519) compared to 2011 (356). The total number of TB patients dying during TB treatment in these six hospitals declined by 37% from 87 deaths in 2011 to 54 in 2012.

At the global level TB CARE I supported the STOP TB PPM subgroup. In November 2012 a PPM toolkit workshop on engaging the for-profit private sector was organized in conjunction with the PPM subgroup meeting in Kuala Lumpur, Malaysia. The workshop provided a platform to review and discuss new approaches to engage the for-profit private sector based on successful country experiences.

The group convened again in Bangkok in August 2013. It reviewed global progress in PPM and discussed ways to accelerate PPM scale up within the post-2015 TB strategy.

TB IN PRISONS

The program works in eight countries to improve the diagnosis, treatment and care of prisoners or prison staff with TB. In Cambodia, TB CARE I helped to expand TB/HIV services from seven to 10 prisons in the country. In Year 3, 122 TB cases were diagnosed among the 4,583 prison inmates (2,662/100,000), while a 90% TSR was achieved in the 10 TB CARE I-supported prisons. In addition, the project conducted a mass screening of inmates and staff in the ten prisons using chest x-ray, sputum examination and Xpert. In total, 108 of the 5,669 (1,905/100,000 prevalence) individuals screened were diagnosed with TB and initiated on treatment.

In Indonesia, TB CARE I has successfully

supported the implementation of TB in prisons and TB-HIV collaborative activities in 25 large prisons and detention centers. External linkages with other health facilities for released inmates with TB and/or HIV have been established with a referral success rate of 80%. All prisons now conduct mass at-entry TB screening.

At the global level, a workshop to scale up engagement of prisons in TB control was conducted with participants from seven high-burden Asian countries. Action plans to scale up engagement of prisons were drafted and finalized in country.

GHANAIAN PRAYER CAMP LEADER NOW PROMOTES MEDICAL TREATMENT FOR TB

Early diagnosis and treatment of TB is a challenge in Ghana. In many communities, like Lower Manya Krobo District, this challenge is compounded by the popular belief that TB is a spiritual disease. Many Ghanaians who contract TB seek healing in prayer camps and shrines, rather than going to health facilities for testing and treatment. By the time these patients seek medical care, it often is too late to recover and avert death.

Lower Manya Krobo District has over 93,000 residents and a high incidence of TB (209 cases per 100,000 people in 2011). The district is also home to many of the nation's mushrooming prayer camps, where local healers provide daily services for ill residents. There are 50 prayer camps in Lower Manya Krobo District and only 18 health facilities.

Grace Tsawe owns a prayer camp in this district, and she usually sees over 100 patients on her main clinic day. Until recently, Grace did not see the need to refer her patients to health facilities, as she believed that TB could only be cured through prayer. However, in December of 2011, Grace developed a persistent cough and began rapidly losing weight. Although she prayed fervently, Grace's symptoms persisted, and, eventually, she decided to visit Atua Government Hospital. The doctors at Atua tested Grace and, finding her infected with TB, promptly began her on treatment.

The USAID-funded project, TB CARE I Ghana, led by MSH with partners KNCV and WHO, has been working to increase TB case detection in the Lower Manya Krobo District since early 2012. As part of this process, the project facilitated a workshop on TB control for over 120 of the district's health workers. In addition to training the staff on TB screening, diagnosis, and treatment, TB CARE I has also taught them to encourage prayer camp owners to screen their patients for TB and refer them to health facilities if they are in need of testing and treatment.

One of the project's trainees, Victoria, is a TB Coordinator at Atua Government Hospital. After Grace began TB treatment, Victoria encouraged her to give her prayer camp clients the same opportunity for testing and treatment. Having experienced a full recovery, Grace was easily persuaded and Victoria taught her how to identify TB symptoms and refer to the hospital. Grace is pleased to see how TB screening and treatment have helped to improve her patients' health. "I now know that TB is not a spiritual disease and, when it is promptly tested and treated, TB is indeed curable. TB treatment has saved my life and I am ready to proudly give my testimony to my counterparts across the country," she said. Grace is now encouraging her fellow prayer camp owners to refer patients who they suspect of having TB to the hospital. Furthermore, Grace has requested support from the hospital to hold a workshop for other prayer camp owners so they can be trained in TB infection control. TB CARE I and the Atua Hospital managers are working with Grace to organize this training. Last year TB CARE I also arranged for Grace to give her testimony to a gathering of over 200 health professionals and local residents in Koforidua Region. The project is now developing a documentary film about Grace's life that will be broadcast over radio and TV stations across the country.



Grace Tsawe, a prayer camp owner, encourages other prayer camp owners to promote medical screening and referral for TB
Story & Photo: Bismarck Adusei

LABORATORIES

OUR AIM

1. To ensure capacity, availability and quality of laboratory testing to support the diagnosis and monitoring of TB patients
2. To ensure availability and quality of technical assistance and services
3. To ensure optimal use of new approaches for laboratory confirmation of TB and incorporation of these approaches in national strategic laboratory plans

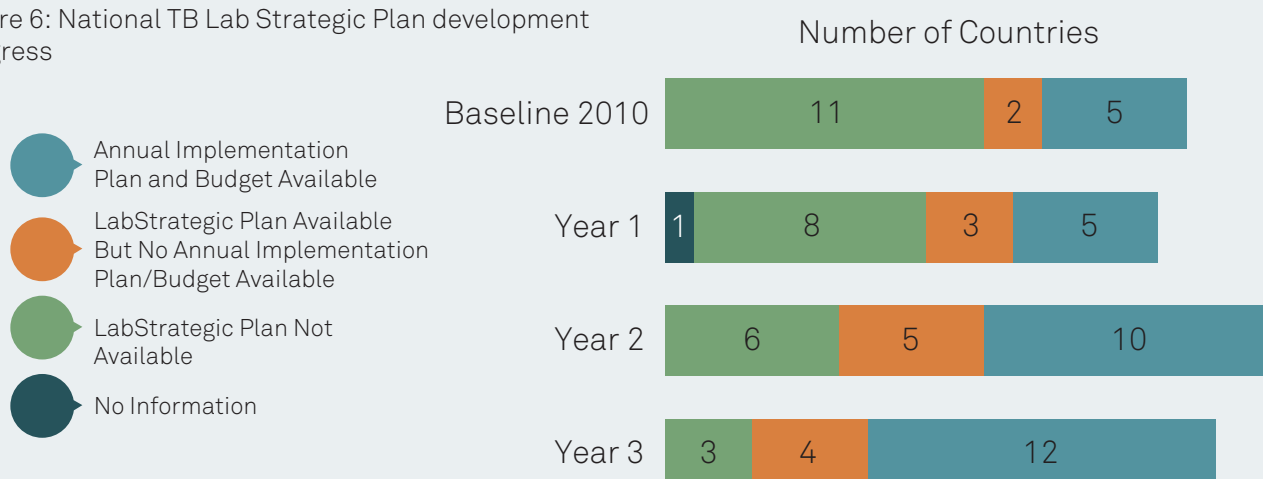
- 16 TB CARE I Countries Work on Laboratories
- 9 New Core Projects
- 1 Regional Project
- 2,270 People Trained in Year 3 (1,321 Males/949 Females)

DEVELOPMENT OF NATIONAL TB LABORATORY STRATEGIC PLANS

During the last year, 10 countries invested in the development of a TB Laboratory Strategic Plan (Botswana, Ghana, Indonesia, Kazakhstan, Kyrgyzstan, Mozambique, Nigeria, South Sudan, Viet Nam and Zambia), which is essential for NTPs to efficiently plan and coordinate lab-strengthening activities. Through this support, significant progress was made (Figure 6).

To further support this work, TB CARE I has developed a Practical Handbook for National TB Lab Strategic Planning, which is designed to guide NTPs to develop their own TB lab strategic plan. The handbook is now available for download on the TB CARE I website.

Figure 6: National TB Lab Strategic Plan development progress



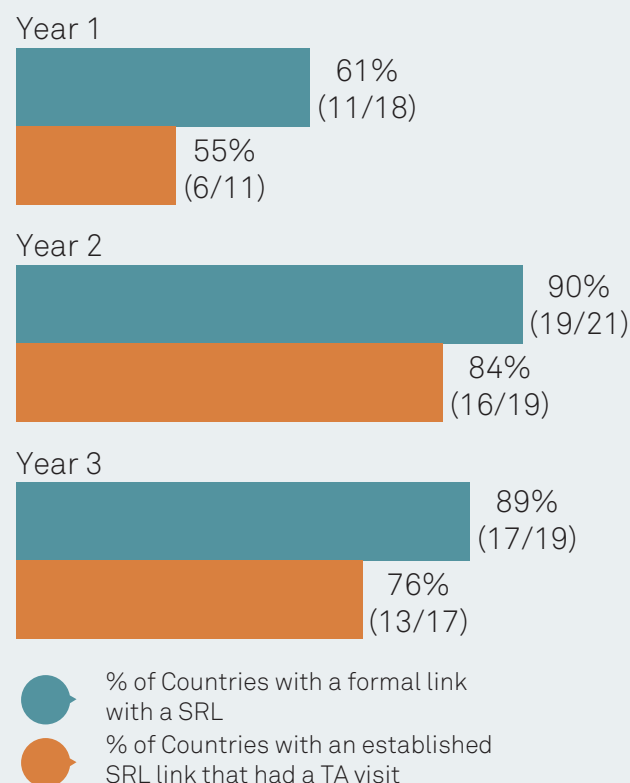
SUPRANATIONAL LABORATORY NETWORKS

In addition to a TB Lab Strategic Plan, it is essential for every national TB Reference Laboratory (NRL) to establish a link with a Supranational Reference Laboratory (SRL), which provides technical support and quality assurance. Therefore, supporting countries in establishing a link with an SRL and facilitating SRL-technical assistance (TA) visits has been a priority for TB CARE I. Since the beginning of TB CARE I, significant progress has been made in a number of countries (Figure 7).

While the largest increase was observed in Year 2, numbers and percent of linked labs and TA visits have stagnated or slightly decreased in Year 3. The underlying reason for this is that some SRLs are planning to stop their SRL service or have already done so. Although this has affected some of the TB CARE I supported countries in that they do not have an official link at the moment, some of these countries are now seeking to be supervised by the newly established SRL in Uganda, which was also established with the support of TB CARE I (see below). This shift towards more supervision activities by the Uganda SRL will contribute to the sustainability of the Uganda SRL. In Year 3, only Cambodia, Indonesia, Kyrgyzstan and Nigeria invested financially in this area and are

in line with the strategy to further reduce the direct financial support by TB CARE I since TA visits by SRLs can and should be supported directly through the Global Laboratory Initiative (GLI)/WHO.

Figure 7: Number and proportion of countries with established formal links with an SRL and TA visits conducted in Years 1-3



NEW TB SUPRANATIONAL REFERENCE LABORATORY

A new TB SRL in Africa was officially opened on the 10th of July in Kampala, Uganda. After six years of hard work and investment from USAID (through TB CAP/TB CARE I) and CDC, the laboratory received this accreditation from the WHO in April 2013. The project was developed with The Union as lead and in collaboration with the SRL at the Tropical Institute in Antwerp, KNCV and the Royal Tropical Institute in Amsterdam. This team worked continuously over the past six years with the laboratory staff in Uganda. The strategy was to first strengthen the knowledge and skills of staff, the infrastructure and technical capacity of the laboratory so it was able to fulfill its role and responsibilities of providing quality services throughout Uganda. Once that was

established, the next step was to invest in the resources needed to ensure that the laboratory and its staff could provide additional international services to other national reference laboratories in the East Africa Region. Four years later in early 2011, and after a wide range of activities, improvements and interventions had been carried out, an assessment conducted by the WHO found that the laboratory met the requirements to qualify as an SRL-candidate. It was given a two-year probation period to prove its capacity to help other laboratories in the region.

Two years later, in April 2013, the goal of being a WHO certified and registered SRL was reached. The director of the Stop TB

Department, Dr. Mario Raviglione, said that he “recognized the hard work and the commitment made by the Uganda TB Laboratory in order to be confirmed for SNRL status” and he called upon other TB laboratories, especially those that are located in Africa, to strive to achieve the same status.

The new Ugandan SRL has already established formal supervision links with Zambia and

South Sudan; additional links with other countries, such as Botswana and Ethiopia, are under discussion. These connections will play a very important role for the self-sustaining operations of the laboratory in the future and is one of the key opportunities identified in the business and marketing plan developed by a Ugandan consulting company contracted by TB CARE I this year. This plan will be implemented with the support of TB CARE I in the next year.

NATIONAL REFERENCE LABORATORIES

Botswana: The NRL maintained its accreditation to ISO 15189 International Standard after a successful surveillance audit from the South African National Accreditation Systems.

Indonesia: In Year 3, six reference laboratories are now certified for C/DST and are quality assured by the SRL (IMVS, Adelaide) compared

to five labs in Year 2. The Surabaya NRL is being prepared to take over national quality assurance (QA) for C/DST through panel testing and certification of provincial C/DST laboratories. Five additional reference laboratories are currently undergoing the process for QA for DST, while six more have been assessed and are being prepared for C/DST certification between 2014-2016.



Uganda SRL Opening Ceremony Credit: Tristan Bayly



TB Culture Preparations at the Uganda SRL (Through Safety Viewing Panel) Credit: Tristan Bayly

GENEXPERT IMPLEMENTATION

Since the beginning of TB CARE I, Xpert implementation has been supported in 16 of 21 countries (76%) with either procurement of instruments and cartridges and/or TA. In Year 3, 11 countries were supported with procurement and TA (Cambodia, Ethiopia, Indonesia, Kazakhstan, Kenya, Mozambique, Nigeria, Tajikistan, Viet Nam, Zambia and Zimbabwe). In Botswana, Ghana, Kyrgyzstan and Uzbekistan, TB CARE I supported Xpert implementation solely by providing TA (see the [Supporting Data](#) section for more details).

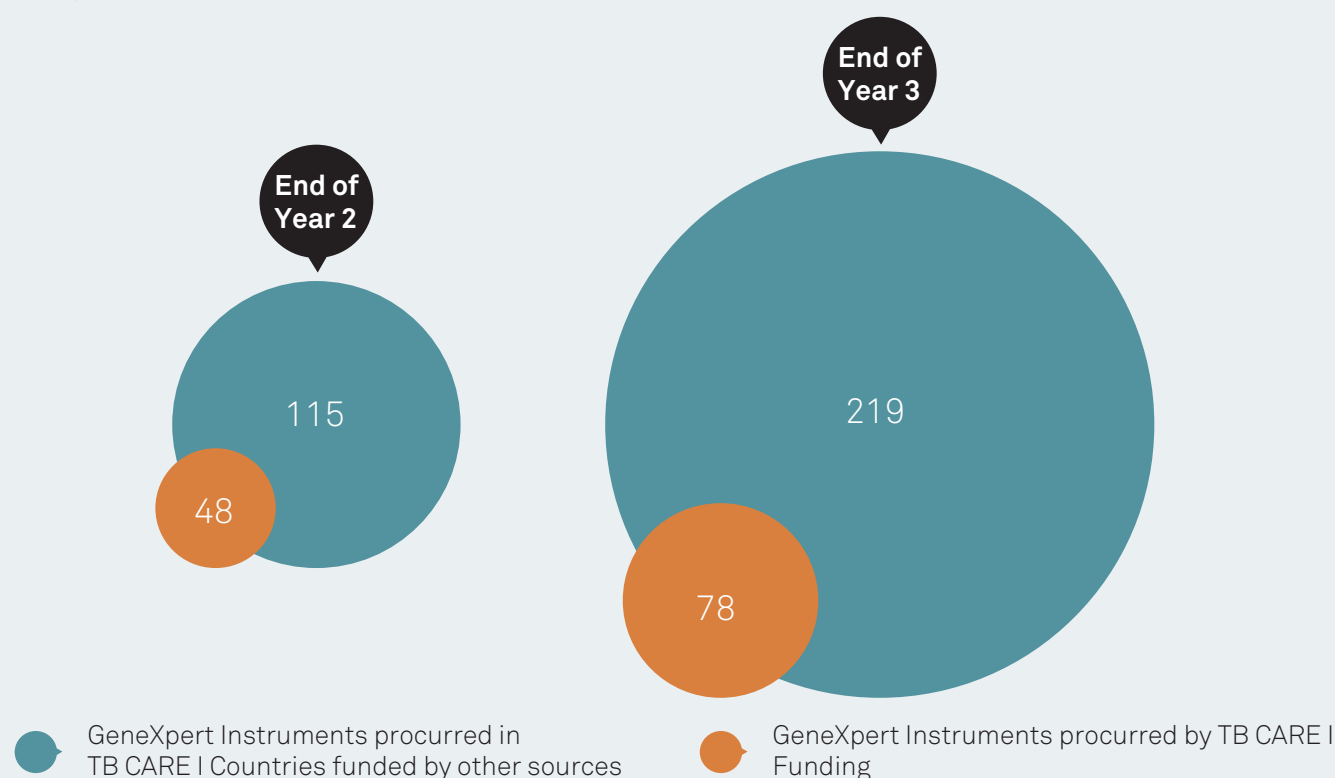
The TB CARE I project contributed to the rapid global scale-up of Xpert; an additional 30 Xpert instruments have been installed in the last year, resulting in a total of 78 operational instruments at the end of Year 3 across all 19 countries (Figure 8). This represents 26% of all operational instruments in TB CARE I supported countries.

The intensified scale-up of Xpert in all countries is reflected in the number of successful tests conducted in Year 3, which

increased by more than 3.5 times from 8,272 tests⁵ in Year 1 and 2 combined to 30,188 tests conducted just in Year 3 (see [Supporting Data](#)). The countries with the highest testing volumes were Nigeria (8,640 tests), Kazakhstan (6,954) and Viet Nam (5,121) (Figure 9).

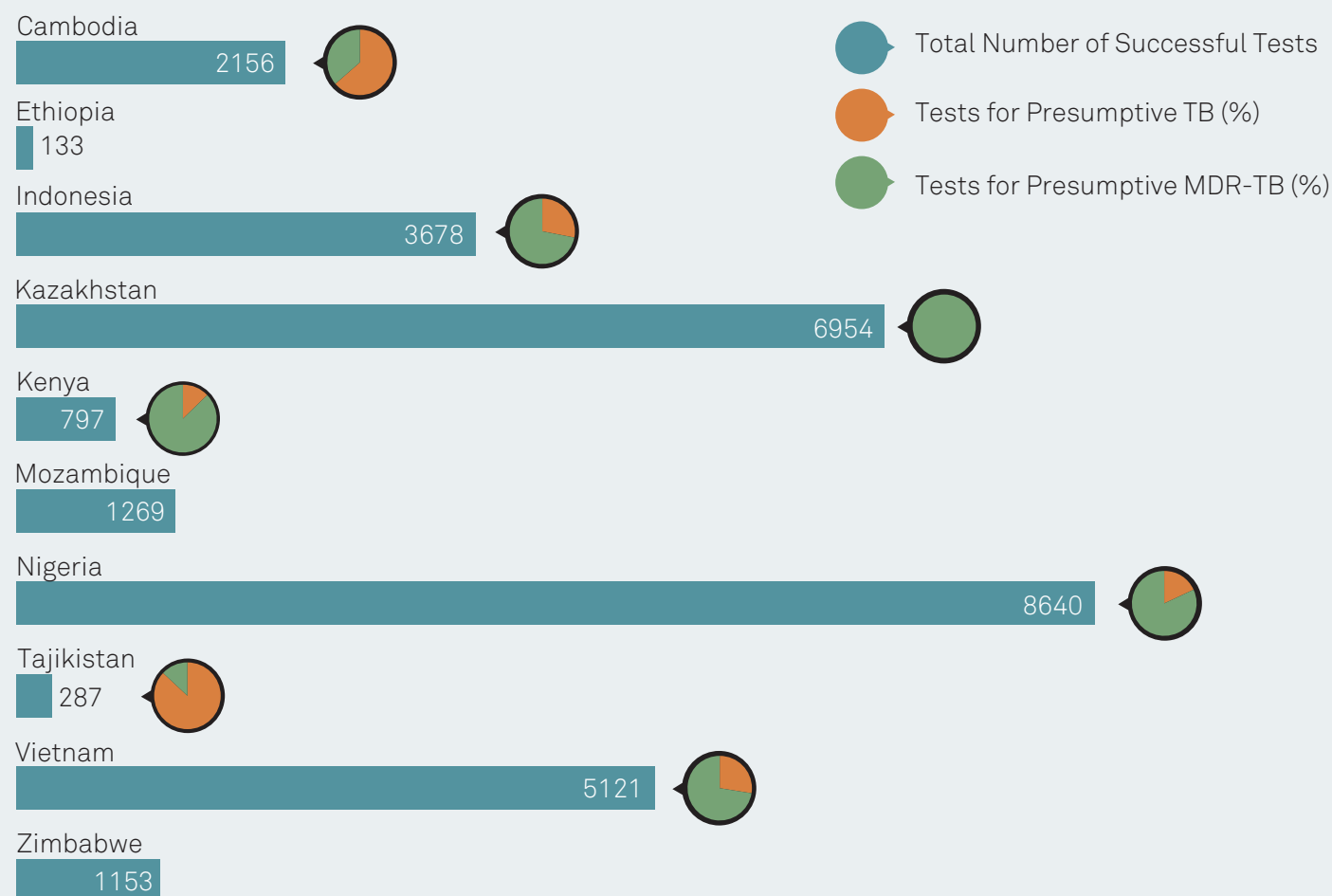
The primary focus of Xpert usage in TB CARE I supported countries remains the detection of RIF-resistant (RR) TB among presumptive MDR-TB cases (Figure 9). With the exception of Cambodia and Tajikistan, which mainly conduct Xpert tests to detect TB in presumptive new TB cases, all other countries with available data focused on the detection of RR TB among presumptive MDR-TB cases. Across all TB CARE I projects, 79.2% of tests are conducted among presumptive MDR-TB cases, 20.8% among presumptive new cases. Ethiopia, Mozambique and Zimbabwe have been excluded from analysis due to the lack of data stratification; this affects only 8.5% of total tests (2,555) and therefore the exclusion of these data does not impact the overall conclusion.

Figure 8: Number of operational TB CARE I supported Xpert instruments at the end of Year 2 and Year 3, stratified by funding source



5. A new Xpert recording and reporting form was introduced after the Year 2 annual report. Because this Xpert form was more detailed, a minor variation was observed between data collected with this tool and the ones previously collected for the annual report, i.e. -3% of total annual tests. For accuracy, this annual report uses Year 1/2 data collected with the special Xpert recording and reporting tool.

Figure 9: Total number of Year 3 Xpert tests conducted per country and proportion of Xpert testing for presumptive new TB vs. presumptive MDR-TB (only TB CARE I supported testing)*

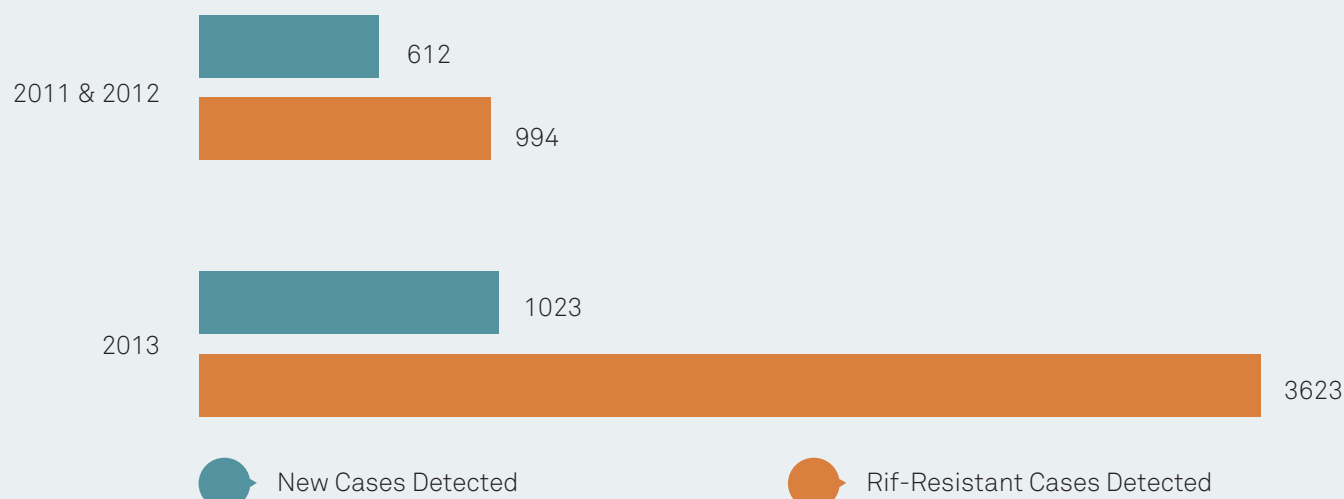


* The bar chart displays the number of Xpert tests conducted in Year 3 per country. Pie charts display the proportion of testing conducted for presumptive MDR-TB (green) vs. presumptive new TB (orange). Pie charts are not shown for countries that do not stratify Xpert tests according to suspect group. Kazakhstan: Due to the high MDR-TB prevalence also among new cases, Kazakhstan has revised the Xpert testing criteria, i.e. everyone is now considered a presumptive MDR-TB case regardless of treatment history.

The rather low proportion of testing among new presumptive TB cases, which include PLHIV, shows that the significant added value of Xpert in the diagnosis of TB among PLHIV is currently underutilized in TB CARE I supported countries. Although progress has been made in increasing the proportion of tests for presumptive new TB cases in some countries (e.g. Nigeria), one of the priority activities for TB CARE I next year, will be the scale-up of Xpert use in this particular group. In the last quarter of Year 3, a new PEPFAR-funded project was initiated on the introduction of Xpert in HIV care settings in Nigeria and Zimbabwe. In addition, a full package of Xpert training materials is available on the TB CARE I website to help any country develop and scale-up a country-specific Xpert strategy.

Similar to the increase of testing volumes, the number of Xpert-diagnosed RR TB cases significantly increased, from 994 cases in Years 1-2 to more than 3,600 cases in Year 3 (Figure 10). These results are encouraging; increasing Xpert testing results in more RR cases being diagnosed (roughly 12% of all test samples were RR in Years 1-2 and again in Year 3). The statistics per individual country are summarized in the [Supporting Data](#) section. The increase in the detection of new drug-sensitive TB cases in Year 3 is rather small, which is in part due to the strong focus of Xpert use for detecting RR TB among projects. Also, since every country did not fully implement a stratified data collection system, the numbers of newly detected TB cases are not reported from Ethiopia, Mozambique and Zimbabwe (see [Supporting Data](#) section).

Figure 10: Number of new and RR-TB cases diagnosed in Year 1-2 and Year 3*



* New TB cases are calculated from Xpert positive tests among new presumptive TB cases. RR TB cases are calculated as Xpert RR TB tests among all tested samples, i.e. presumptive new and presumptive MDR-TB cases. Because these data are not individual patient data but a simplification from the lab register, every patient tested twice will appear twice in this statistics.

In order to strengthen the Xpert implementation process at country level, around 100 participants from 12 African countries came together in July 2013 in Gaborone, Botswana, for the second African Regional Training Workshop on Xpert. Participants included national TB and HIV/AIDS program staff, clinical experts and laboratory experts from 11 countries: Ethiopia,

Kenya, Malawi, Mozambique, Namibia, Nigeria, Tanzania, Uganda, Zambia, Zimbabwe and South Africa. The event, sponsored by TB CARE I, PEPFAR and the African Society for Laboratory Medicine (ASLM), aimed to support countries with the further roll-out and quality-ensured usage of Xpert. Special focus was given to the use of this new diagnostic test for the rapid detection of TB among PLHIV.



African Regional Training Workshop on Xpert MTB/RIF in Gaborone, Botswana

To continue the great progress being made in all countries on Xpert implementation, some areas have been identified that will require more support in the future. As mentioned earlier, the test should be made more accessible to PLHIV, which will require better coordination between TB and HIV national programs in the areas of machine placement and allocation of human resources for TB and HIV services.

The establishment of a national M&E system, which would allow for standardized analysis and ideally also inform selected impact

indicators, is a priority in many countries. Further areas for strong support will have to focus on continued strengthening of national systems for the maintenance and troubleshooting of instruments, cartridge procurement and supply systems, as well as routine supervision programs for individual sites. The main approach for this should be the support of established national Xpert working groups in defining realistic country-specific solutions, as well as implementing these solutions in a coordinated fashion across all NTP partners.

EXPANSION OF QUALITY MICROSCOPY

TB CARE I is working in ten countries to expand and improve the use of External Quality Assurance (EQA). EQA has been established in four out of ten states in South Sudan as a result of TB CARE I activities. In Ghana, TB CARE I trained laboratory staff in the 22 microscopy centers on proper EQA procedures and as a result, nine achieved an EQA performance above 85% in all parameters.

Laboratory services have been expanded as well. TB CARE I-Nigeria supported laboratory

TB expansion to 51 new sites with the provision of microscopes for military and paramilitary health facilities during the year.

Zimbabwe continued to see positive results from the TB CARE I-supported motorcycle sputum transport system, with rapid turnaround times for TB diagnosis dropping from an average of 21 days to seven days in rural districts and from seven days to one day in urban areas.



Intermediate laboratory training, Indonesia

INFECTION CONTROL

OUR AIM

1. To increase TB-IC political commitment
2. To scale-up the implementation of TB-IC strategies
3. To strengthen TB-IC monitoring & measurement
4. To improve TB-IC human resources

- 16 TB CARE I Countries Work on Infection Control
- 4 New Core Projects
- 1,741 People Trained in Year 3 (853 Males/888 Females)

INCREASED TB-IC POLITICAL COMMITMENT

All TB CARE I countries have developed national TB-IC guidelines (compared to only 50% at baseline in 2010) and TB-IC is now incorporated in the overall national Infection Prevention and Control (IPC) Policy of all TB CARE I countries except Uzbekistan. In Kazakhstan, TB CARE I provided assistance for the development of IC standards that inform

the design and procurement of new train cars for the transportation of prisoners. In Zambia, 35 facilities (including six prisons) received support in developing TB-IC plans. These IC plans have been integrated into the 2013-2014 annual action planning cycle so that these activities can be funded by the government.

SCALED-UP IMPLEMENTATION OF TB-IC STRATEGIES

TB CARE I increased its investment into facility level implementation by offering training to facility staff, TA for facility risk assessments and the development of IC plans, provision of commodities such as surgical masks, respirators and fans, and the completion

of minor renovations. In Mozambique, the training of 448 community volunteers in TB-IC has increased their knowledge of basic TB-IC measures and improved their skills on reducing TB transmission within households and communities.

TB-IC CORE PACKAGE

The Core Package, also dubbed the *FAST* strategy, is a well-defined sub-set of the WHO recommended set of administrative controls: **F**inding cases **A**ctively, **S**eparating them safely and **T**reating them effectively. The materials that support the implementation of the *FAST*

strategy were published by TB CARE II and are also available on the TB CARE I website. Nine TB CARE I countries plan to implement the *FAST* strategy in 90 health care facilities in Year 4.

TB SURVEILLANCE AMONG HEALTHCARE WORKERS

As mentioned previously, monitoring TB among HCWs continues to be a challenge in many TB CARE I countries. TB CARE I and II published [a guide to monitor TB disease incidence among HCWs](#) that is available on the TB CARE I website. The guide should help

countries to establish a screening program and surveillance system for detecting and monitoring TB disease among HCWs. Next year, another four TB CARE I countries have planned to start monitoring and reporting TB disease among HCWs.

NDOLA DISTRICT TB-IC DEMONSTRATION SITE

A core-funded project was implemented in 15 healthcare facilities in Ndola district, Zambia, known for its high burden of TB and HIV/AIDS. The overall project goal is to establish a demonstration site for safe work practices on the basis of TB-IC principles to reduce TB transmission among PLHIV and HCWs. The specific aim of the project is to strengthen the district health care system by incorporating TB-IC as part of national IPC policy. The project began in January 2012 and by September 2013, twelve healthcare facilities (80%) complied with the TB-IC work practices policy.

Safe work practices were implemented in all 15 facilities with a 54% improvement observed over a period of 20 months. Improvements include triage and separation of persons with presumptive TB, halving diagnostic turn-around times and ensuring windows and doors are opened. The percentage of persons identified with presumptive TB doubled among general outpatients from 0.3% (381/112,935)

to 0.7% (942/140,775). The number of notified TB patients in Ndola district increased from 3,152 in 2011 to 3,905 in 2012.

Preliminary data from screening 25% of HCWs (382/1,543) for TB show that 26 (7%) had symptoms suggestive of TB and three HCWs (800/100,000) were found with active TB. Final results will be available by April 2014 when all HCWS have been screened.

The set of tools developed for the project has been adapted and adopted in Zimbabwe and Namibia and is currently being scaled up in 39 Zambian health facilities, including prison clinics. Although the project has been successful at demonstrating how implementing TB-IC interventions can directly contribute to improved case notification, it may take a few more years to demonstrate a decrease in TB disease among HCWs.



Renovated waiting area of
Bishoftu Hospital TB - Ethiopia
Photo: Kefenr Mitike

PROGRAMMATIC MANAGEMENT OF DRUG RESISTANT TB

OUR AIM

To improve the treatment success of MDR-TB

- 17 TB CARE I Countries Work on PMDT
- 6 New Core Projects
- 2 Regional Projects
- 1,407 People Trained in Year 3 (700 Males/707 Females)

CLOSING THE GAP ON MDR-TB DIAGNOSIS & TREATMENT

Most countries showed a large increase over the previous year in the numbers of patients started on treatment compared to those diagnosed. Some countries started more patients on treatment than were actually diagnosed, which is due to the treatment of patients diagnosed in previous years (Cambodia, Viet Nam, etc.). Of the annual incident estimated number of patients with MDR-TB in TB CARE I supported countries (n=40,983, WHO Report 2013), 29% were diagnosed (global data 28%). This stresses the importance of not only treating the patients that have been diagnosed, but also detecting many more of them.

The majority of countries currently prioritize diagnosis of MDR-TB among high-risk groups for MDR-TB. To achieve universal access to MDR-TB diagnosis and treatment a major effort is required to also diagnose and treat MDR-TB among new patients who account

for 61% of the annual incident number of patients developing MDR-TB in the reporting countries (WHO Report 2013). The countries with the highest number of estimated annual incident MDR-TB patients not being diagnosed and treated (new and re-treatment) are in Indonesia (n=6,362), Nigeria (n=3,458), Viet Nam (n=3,087), Kenya (n=2,555), Uzbekistan (n=2,502), Ethiopia (n=1,791), and Mozambique (n=1,725), which account for 74% of the missing burden of undiagnosed patients in TB CARE I countries.

In 2012 the gap between diagnosed MDR-TB cases and those started on MDR-TB treatment was narrowing compared to previous years. It is crucial that countries work towards a zero waiting list for MDR-TB treatment and that hospital admission should only be required on special indication (illness, social problems), while ambulatory treatment from the start should be the standard of care.



The first MDR-TB patient at the newly refurbished Mulago Hospital, Kampala, Uganda Credit: Tristan Bayly

QUALITY DIAGNOSIS AND TREATMENT

The quality of both diagnosis and treatment for MDR-TB is critically important to ensure that the high investments in PMDT are effective and efficient in interrupting the chain of transmission by early diagnosis and effective treatment. Once a patient is started on MDR-TB treatment, close follow-up of the patient is critical to continuously motivate the patient to adhere to the demanding and long regimen by providing counseling and psychological support, to monitor and manage side-effects, and provide social support to offset patient travel and opportunity costs. In the absence of close follow-up, the TSR is likely to be low, with a large proportion of patients abandoning treatment.

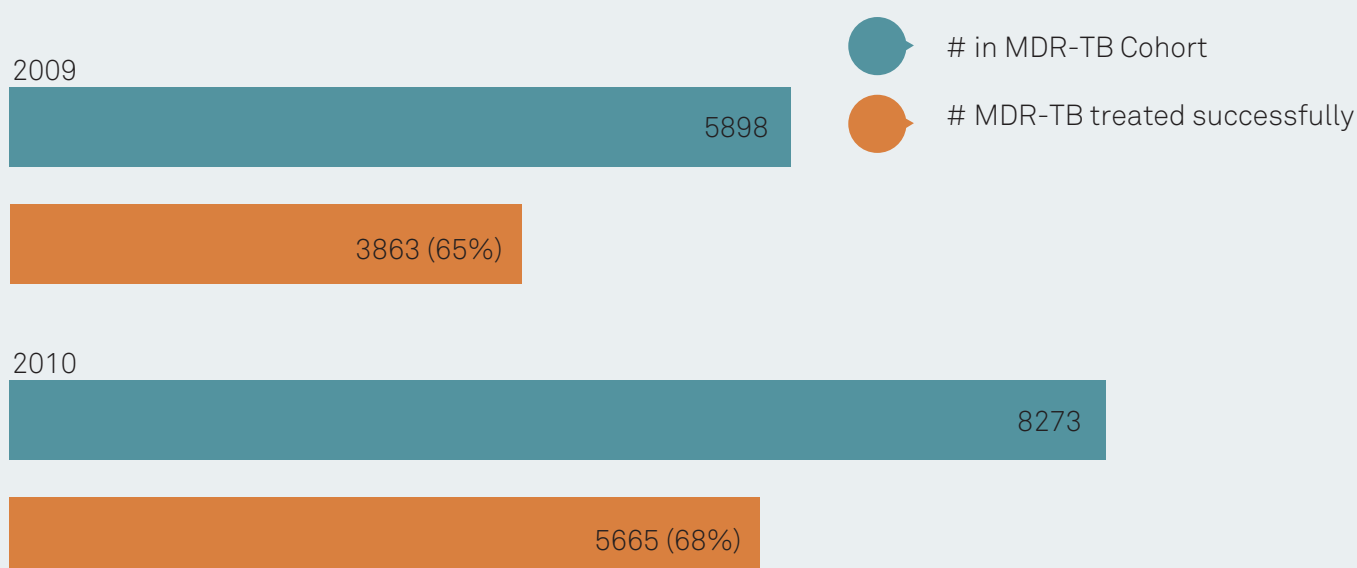
The important indicator used for monitoring the quality of treatment is the treatment outcome for patients registered in a particular cohort at six months and at the end of treatment after two years. Of the 18 countries reporting data on patients registered for treatment, 14 reported data on six month treatment outcomes (still on treatment and culture converted), reaching a (weighted) average of only 35% (n=8,738), with a range of 2% (Ethiopia, n=289) to 83% (Uganda, n=23). The target for good performance is >85%. This is an area that needs major attention in the coming years to ensure the proper treatment

of current cases and to minimize the risk of developing more XDR-TB.

Kazakhstan reported that only 49% of all patients (n=4,822) started on treatment had converted by six months. However, major progress has been seen in the two TB CARE I pilot regions. In Year 3, 85% (24/28) in Akmola and 60% (41/60) in EKO of MDR-TB patients had completed the full course of MDR-TB treatment and had a negative sputum culture compared to 25% and 20% for these same regions last year.

Figure 11 shows the total number of patients registered in the 2010 MDR-TB treatment cohort and the number that successfully completed treatment. Out of 8273 patients starting MDR-TB treatment, 68% were reported as successfully treated, ranging from 29% (Mozambique) to 90% (Uganda). Kazakhstan alone contributed 5,777 MDR-TB patients of whom 73% successfully completed treatment (see [Supporting Data](#) for treatment outcomes by country). Four TB CARE I countries perform above the global target for successful treatment completion of confirmed MDR-TB patients (75%). However, several countries still have unsatisfactory final treatment outcomes.

Figure 11: Number of MDR-TB patients registered on treatment and number (percent) that successfully completed treatment, 2009-2010 (WHO 2013)*



*Although TB CARE I started its operations in October 2010, many patients who started MDR-TB treatment in 2009 and 2010 were being managed and supported with TB CARE I support during the course of their two-year journey through treatment. Successful completion of treatment includes 'cured' and 'completed treatment'.

SOCIO-ECONOMIC SUPPORT OF MDR-TB PATIENTS

During Year 3, seven countries (Cambodia, Ethiopia, Ghana, Indonesia, Namibia, Nigeria and Zimbabwe) invested directly in the socio-economic support of MDR-TB patients including accommodation, hospitalization,

nutrition, tests/screenings, transportation, psychosocial support, consultative meetings and treatment support (side effect mitigation, etc.). TB CARE I also invested in the procurement of Second Line Drugs (SLD).

HIGHLIGHTS OF TB CARE I PMDT SUPPORT

- In Cambodia TB CARE I collaborated with the NTP to conduct intensified screening of MDR-TB suspects through active identification and testing of all registered TB patients meeting the eligibility criteria for MDR-TB. As a result, 117 MDR-TB patients were diagnosed in 2012 – twice the number diagnosed in 2011, of whom 94% (n=110) were put on treatment.
- In Indonesia TB CARE I focused on decreasing the mortality rate of MDR-TB: the program succeeded in halting the increase of initial default and mortality rates of notified MDR-TB cases. To improve patient adherence, TB CARE I made strong efforts to assist the NTP in the decentralization of services to the nearest health facility and improving patient support, including establishment of Peer Educators for MDR-TB and the introduction of PCA. By the end of 2013 more than 300 PMDT satellites health centers will be functional and 64% of patients (452/708) are continuing treatment for PMDT at satellite health centers.
- The clinical management of MDR-TB in Zimbabwe was decentralized from two regional centers to all 62 districts, making the treatment of MDR-TB much more accessible. TB CARE I's advanced clinical MDR-TB course for medical officers stationed in the districts, and extensive training and mentorship on PMDT, allowed for the rapid and expansive decentralization.
- WHO Europe published a compendium on best practices in prevention, control and care for drug resistant tuberculosis in September 2013, which included three best practices from Kazakhstan supported by TB CARE I: 1) Implementation of Xpert; 2) Psychosocial patient support; 3) Policy, legislation and guidelines for TB.
- A tool for modeling the cost-effectiveness of MDR-TB services was developed using TB CARE I core funding and has been used in Indonesia for advocacy and planning purposes.



Healthcare Worker with an MDR-TB patient, Ethiopia

Credit:
David Collins

TB/HIV

OUR AIM

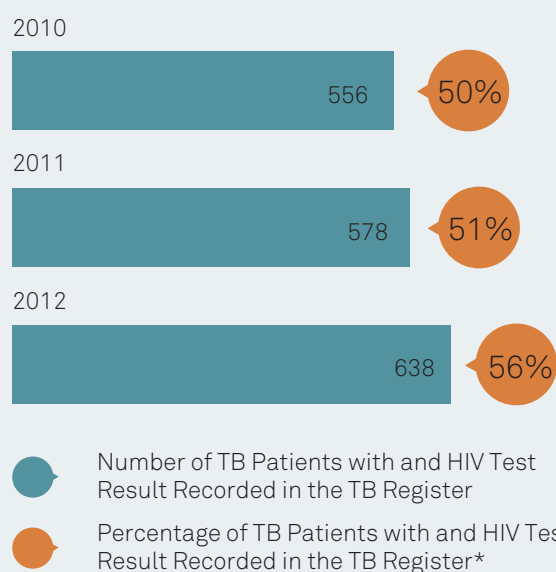
1. To strengthen prevention of TB/HIV co-infection
2. To improve diagnosis/treatment of TB/HIV co-infection
3. To ensure optimal use of new approaches for laboratory confirmation of TB and incorporation of these approaches in national strategic laboratory plans

- 16 TB CARE I Countries Work on Laboratories
- 9 New Core Projects
- 1 Regional Project
- 2,270 People Trained in Year 3 (1,321 Males/949 Females)

TESTING FOR HIV

With 56% of TB patients having HIV test results in the TB register, slow improvements are being made (compared to 50% and 51% in 2010 & 2011 respectively) (Figure 12); the global average is 46%. However, there is a wide variation between countries, from Indonesia (1%) to Kyrgyzstan (100%) (see [Supporting Data](#)). TB CARE I does not directly support TB/HIV initiatives in Kyrgyzstan, however a new regulation was implemented in 2012, which clearly had a powerful impact on this output (from 2% in 2011 to 100% in 2012). In 14 of the 19 TB CARE I countries, more than 75% of notified TB patients had a documented HIV test result, including eight (Botswana, Kazakhstan, Kenya, Kyrgyzstan, Mozambique, Tajikistan, Uzbekistan and Zambia) that achieved levels above 90%. All CAR countries report ~100% testing rates. Globally in 2012 only 46% of notified TB patients had a documented HIV test result (74% in the African region), which illustrates that TB CARE I countries are generally ahead of the curve.

Figure 12: Number and percentage of TB patients with an HIV test result recorded in the TB register, 2010-2012 (WHO 2013)*



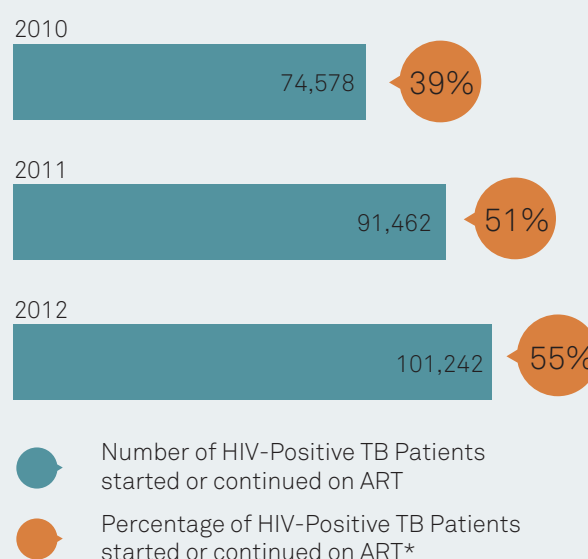
*2010: 50% (of 1,112,695); 2011: 51% (of 1,133,632); 2012: 56% (of 1,131,614)

ANTIRETROVIRAL THERAPY AND COTRIMOXAZOLE PREVENTIVE THERAPY

The average percentage of HIV positive TB patients on Antiretroviral Therapy (ART) rose to 55%, up from 39% in 2010 and 51% in Year 2 (Figure 12). The global average is 57%. Further decentralization of ART services, for instance by fully integrating HIV and TB service provision, will be necessary to achieve 100%. Improvements were seen in Namibia where 72% of the HIV positive TB patients were started on ART (compared to 54% in 2011). In Zimbabwe, in response to the high prevalence of HIV infection (78%) among TB patients, integrated TB/HIV care was decentralized to a further 10 clinics, bringing the total to 23. This contributed to the national increase in the proportion of HIV-positive TB patients started on ART from 42% in Year 2 to 67% in Year 3.

The percentage of eligible patients receiving CPT remained at 80% in 2012 with low coverage reported in Ethiopia (37%), Indonesia (18%) and Zimbabwe (26%) (See [Supporting Data](#)).

Figure 13: Number and percentage HIV-positive TB patients started or continued on ART, 2010- 2012 (WHO 2013)*



* 2010: 39% (of 190,938); 2011: 51% (out of 179,593); 2012: 55% (out of 182,566)

SCREENING FOR TB AND LATENT TB INFECTION

Screening for TB and treatment of latent TB infection among HIV positive clients continues to be a challenge as does the reporting of these cases. Of the 19 TB CARE I countries, only nine reported to the WHO on screening for TB and only 11 reported on the treatment of latent TB infection. Often this is because the reporting system does not capture these data or because providing isoniazid preventive therapy (IPT) for PLHIV is not yet implemented by the NTP/NAP. In Indonesia, the pilot implementation of IPT has been successfully completed in four hospitals; 73% (205/281) of PLHIV received IPT and 81% (167) of the patients completed the six month regimen, demonstrating high uptake and adherence to IPT is possible. The NTP will scale up the implementation of IPT with assistance of TB CARE I in Year 4.

Zambia and Namibia both began implementing the Three I's Initiative this year with TB CARE I support, a three year project that focuses on intensified case finding (ICF), infection control and IPT. In Zambia, the project installed seven Xpert machines in two target provinces, conducted facility baseline assessments in all 18 target sites, and trained HCWs, prison service providers and community volunteers who will lead the ICF activities.

HEALTH SYSTEMS STRENGTHENING

OUR AIM

1. TB control is embedded as a priority within the national health strategies and plans, with matching domestic financing and supported by the engagement of partners
2. TB control components (e.g. drug supply and management, laboratories, community care and M&E) form an integral part of national plans, strategies and service delivery

18 TB CARE I Countries Work on Health System Strengthening

1 New HSS Core Project (Plus 6 General Core Projects)

1,265 People Trained in Year 3 (616 Males/649 Females)

STRATEGIC PLANNING

The program has supported the development of NTP strategic plans in ten countries (Afghanistan, Cambodia, Ethiopia, Ghana, Indonesia, Kyrgyzstan, Mozambique, South Sudan, Uganda and Uzbekistan). In Kyrgyzstan, the National Program “Tuberculosis IV” (2013-2016), which was developed with TB CARE I support and approved by the government in June 2013, is a road map for implementing TB activities in the country.

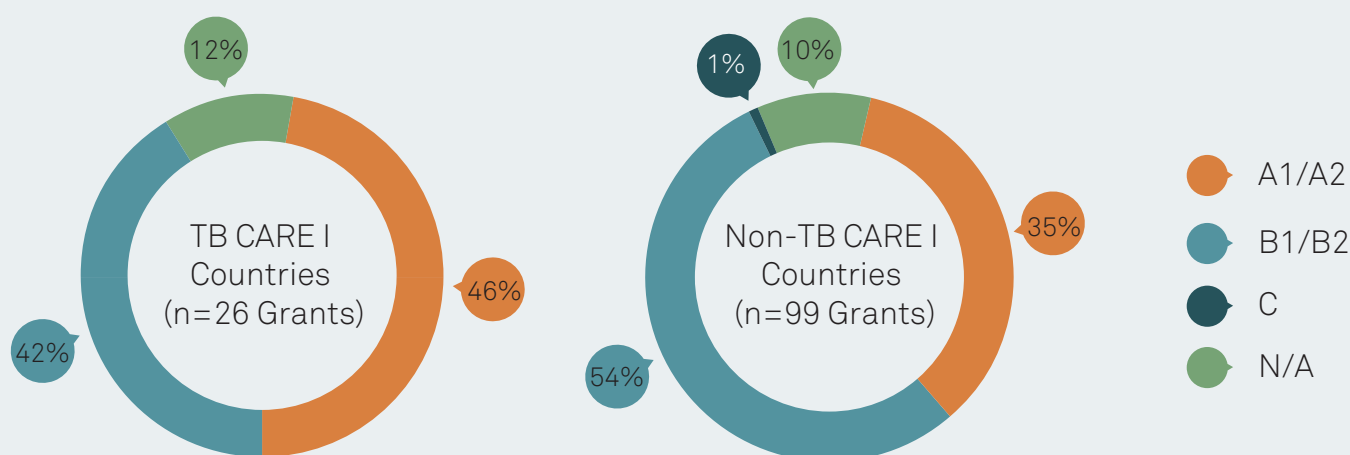
Formal reviews of NTPs often inform the strategic planning process; TB CARE I participated in nine NTP reviews this year (Afghanistan, Ethiopia, Ghana, Indonesia, Namibia, Nigeria, Tajikistan, Uganda and Zambia). At a regional level, TB CARE I played a key role in the development of the *Integrated Strategic Plan for HIV/AIDS, TB and Other Infectious Disease* for the East, Central and Southern Africa, Health Community (ECSA-HC).

TB CARE I AND THE GLOBAL FUND

TB CARE I is committed to engaging with the Global Fund (GF) both at the global and country level. TB CARE I staff regularly participate in meetings in Geneva organized by WHO and/or GF. TB CARE I senior staff are members of the TB Disease Committee and the Strategic Investment Committee. In Year 3, program staff both from the central and country offices participated in TBTEAM instruction workshops on providing TA on the New Funding

Mechanism (NFM). TB CARE I country work plans and budgets are always prepared taking into consideration the GF in-country plans. As seen from Figure 14 (page 38), GF grant performance is better in TB CARE I countries compared to non-TB CARE I countries. While 46% of all grants in TB CARE I countries are rated as A1/A2, only 35% of grants in non-TB CARE I countries have the same rating.

Figure 14: Comparison of grant performance in TB CARE I and non-TB CARE I countries



Below are a few examples of the program's country level engagement during the year:

Afghanistan: Country Director is head of the CCM, and is part of GF grant implementation
Botswana: Provision of TA for a position paper for the CCM and a grant closure plan.

Cambodia: Assisting the NTP to apply to the NFM including the development of the National Strategic Plan (NSP) for TB control (2014-2020).

Ghana: Country Director chairs the CCM HIV/ TB Oversight Committee, which provides support to ensuring grant performance.

Indonesia: Successfully assisted the Principal Recipient (PR) in Phase 2 proposal development and grant negotiations. The total budget for Phase 2 amounts now to \$56.5 million for the MoH and \$10 million for PR, Aisiyah. Key examples include improving MDR-TB program quality and strengthening financial management capacity by experts contracted under TB CARE I.

Kazakhstan: Good collaboration with the GF in PMDT, Xpert implementation and M&E areas. Also support in the development of the concept note, which focuses on the expansion of outpatient care nationwide based on the experience of the TB CARE I pilot in Akmola oblast.

Mozambique: Support in the development of key documents used for the concept note.

Nigeria: TB CARE I activities are complementary with the current GF plan, particularly on PMDT activities with patient support and second line drugs for patients.

South Sudan: TA for the development of the GF Transitional Funding Mechanism of approximately \$8.6 million, which included mentorship and support visits to health facilities and in addition, the GF ensures that TB drugs and laboratory supplies are made available to sites that have been established with the support of TB CARE I.

Tajikistan: Good collaboration with the GF, especially in Xpert implementation, PMDT and M&E.

Uzbekistan: Contributes to the GF-funded TB and MDR-TB treatment program through the development of national policies; including outpatient care, national TB and MDR-TB strategy development and PMDT. TB CARE I developed an MDR-TB outpatient model, which will serve as a policy framework for the GF-supported national TB program.

Viet Nam: The project is assisting in the review and update of the NSP.

HELPING NATIONAL TB PROGRAMS BECOME MORE FINANCIALLY SELF-SUFFICIENT: SPOTLIGHT ON INDONESIA

Government Funding

TB CARE I is assisting the NTP and MOH in Indonesia to make the TB Control Program financially sustainable from domestic resources, as donor funding reduces and costs increase due to the expansion of TB and MDR-TB detection and treatment. One major achievement was the development of national guidelines for the financial sustainability of the program, which will assist local governments in knowing how much they should allocate for TB control. TB CARE I also organized an international workshop in Jakarta on sustainable financing for TB that was attended by representatives from Indonesia, Myanmar, Thailand, Malaysia, Laos, Viet Nam, The Philippines and China and was supported by TB CARE I, the Global Fund, the Gates Foundation and MSH.

Costing

A TB CARE I-developed tool for modeling the costs of TB services was piloted in Central Java and then used at the national level. Based on the NTP's detection and treatment targets, the full cost of delivering services for the country is projected to increase from roughly \$85 million in 2013 to \$118 million in 2016, the increase being largely due to the increased treatment of MDR-TB cases. A tool for modeling the economic burden of TB was also completed by TB CARE I and used at the national level. This model estimates that the economic burden to the country, including service delivery, patient costs and losses of productivity due to disability and premature death could be as much as \$2 billion (undiscounted) for the number of new active cases in one year. Comparisons of the service delivery cost and economic burden show clearly the economic benefit of investing more in case detection and successful treatment. The results of both models are being used by the NTP to advocate

for increased government financing. A tool for modeling the cost-effectiveness of MDR-TB services was also developed using TB CARE I core funding and tested in Central Java. These tools are available on the TB CARE I website for use globally. Another TB CARE I core activity conducted in Indonesia was a study on MDR-TB patient costs, the methodology and results of which will be used to advise on mitigation policies in Indonesia and will be published internationally.

TB CARE I hosted a national policy workshop led by the directors of the infectious disease programs and the Vice-Minister (who is heading the development of national social insurance) at which the results of the costing studies were presented and participants discussed to what degree TB services should be funded through the government budget and insurance.

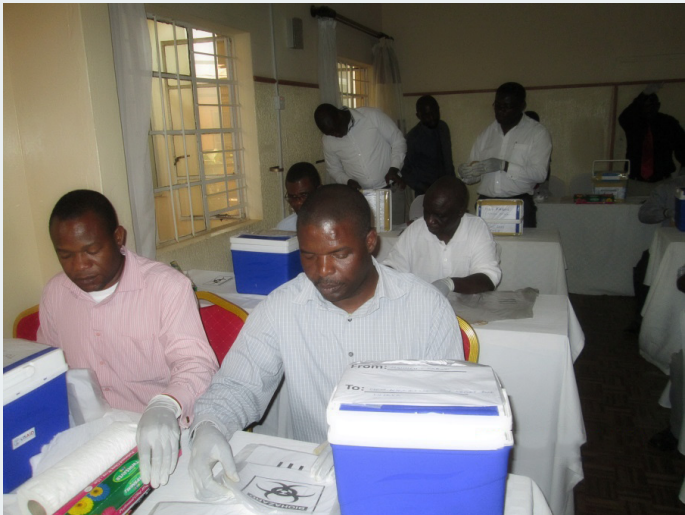
Insurance

TB CARE I also conducted OR on the use of insurance for paying for TB services and the results are being taken into account in negotiations with the national social health insurance task team. As a result of the costing work, workshops, OR and other discussions, it has been agreed in principle that in the long-term personal health services for TB (diagnosis and treatment) will be financed through national social insurance while public health services for TB (e.g. active case finding) will be financed by the government. This was a significant policy decision and should help to secure the funding of the TB program in the long-term.

TRAINING AND SUPERVISION

TB CARE I trained 39% more people in Year 3 (16,730) than in Year 2 (12,000). The increase in numbers trained is even more dramatic when compared to the 4,354 trained in Year 1 (nearly a three-fold increase). Figure 15 summarizes the distribution of those trained by technical area, which illustrates that the largest number trained were under Universal Access and M&E. Unlike last year where more than 50% of trainees were women, 39% of trainees in Year 3 were female. Gender differences varied greatly by country with Afghanistan (87% male) and Cambodia (82% male) having the largest percentage of male trainees while Kyrgyzstan (17% male), Kazakhstan (33% male) and Zimbabwe (37% male) had more female trainees. In addition to trainings funded through country workplans, TB CARE I also trained 243 people through core-funded projects.

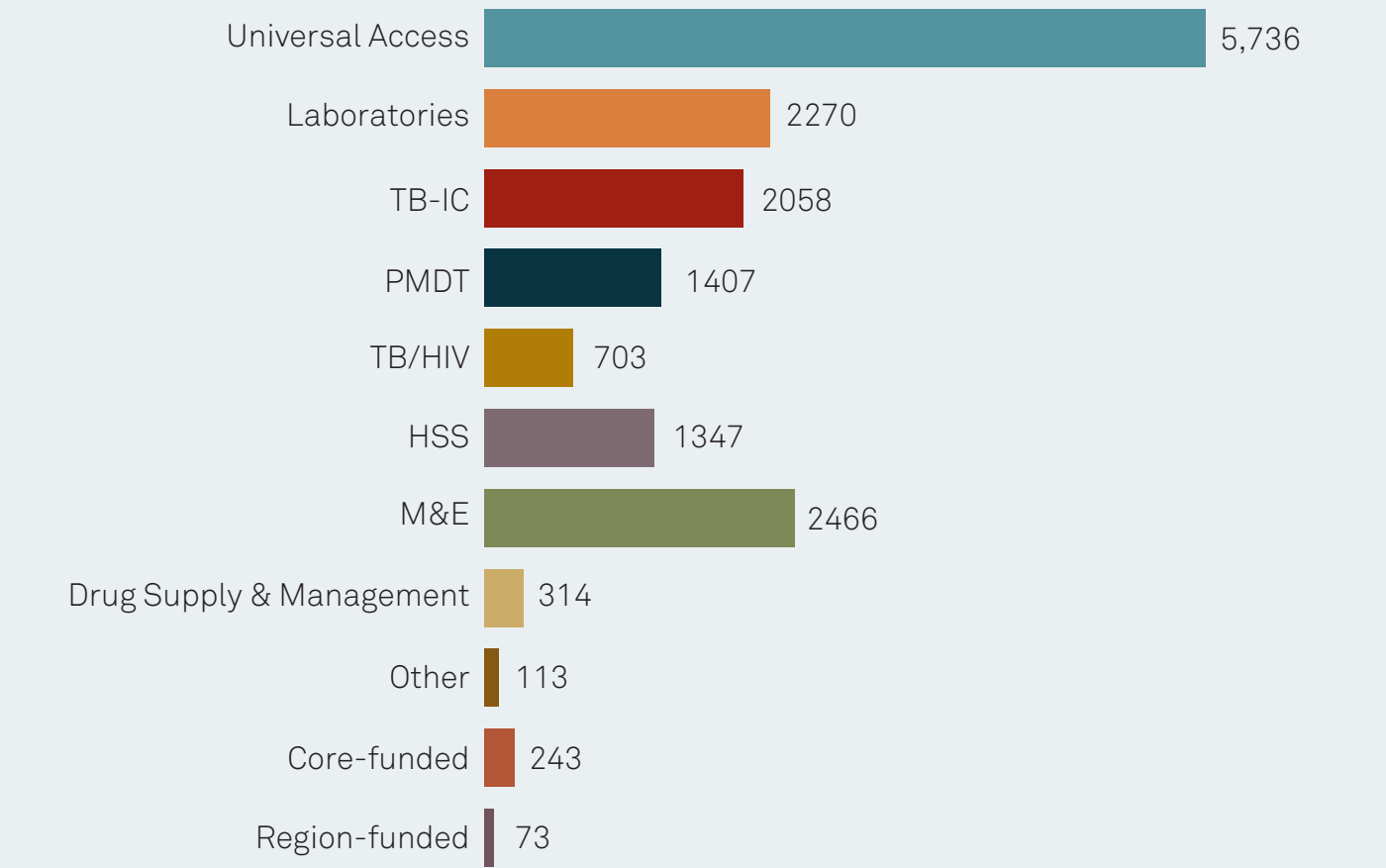
TB CARE I is supporting training efforts regionally as well. The Center of Excellence in Kigali, Rwanda, was developed to provide training on PMDT to surrounding countries.



Ministry of Health and ZAMPOST staff being trained on the TB Specimen Referral System, Zambia

This year, four international workshops were held on basic TB Infection Control, PMDT, TB/ HIV co-infection and laboratory diagnostics. In total 73 individuals from 12 countries were trained. As a positive demonstration of the center’s efforts to become more sustainable, 26% of attendees paid to attend their course as opposed to being supported by the center.

Figure 15: Distribution of individuals trained per technical area (Total=16,730)





Biennial TB Meeting - Kenya

Credit: Pamela Liyala

M&E, SURVEILLANCE AND OR

OUR AIM

1. To strengthen TB surveillance
2. To improve the capacity of NTPs to analyze and use quality data for the management of the TB program
3. To improve the capacity of NTPs to perform operations research

- 18 TB CARE I Countries Work on M&E
- 4 New Core Projects
- 2,466 People Trained in Year 3 (2,080 Males/386 Females)

ELECTRONIC RECORDING AND REPORTING

Electronic recording and reporting (ERR) remains an important priority for many countries. Ten TB CARE I countries report having a case-based electronic register (Botswana, Indonesia, Kazakhstan, Kenya, Kyrgyzstan (not fully functional), Namibia, Nigeria, Tajikistan, Uzbekistan and Viet Nam). Systems vary by country with some including all TB patients or focusing on a key subset (i.e. MDR-TB or prisoners). In Kazakhstan, the project helped develop an online TB electronic information system for the prison system. e-TB manager is being used in five TB CARE I countries (Cambodia, Indonesia, Namibia⁶, Nigeria and Viet Nam) for TB or MDR-TB

case management, laboratory reporting, SLD management and reporting. In Indonesia, e-TB manager is now being implemented in 10 out of 11 PMDT sites, as a tool to provide timely, consistent and accurate data on case management, laboratory results and SLD stock levels. Through TB CARE I-Viet Nam, e-TB manager covers 12 treatment sites and ~40 Districts. Data for around 95% of on-going cases from 2012 and 2013 have been entered into e-TB manager. Cambodia is currently piloting e-TB manager for MDR-TB cases, and the system is expected to be functional by the end of Year 4.

6. e-TB manager implementation is not supported by TB CARE I in Namibia.

SUPPORTING AN INNOVATIVE WEB-BASED TB PROGRAM MANAGEMENT SYSTEM IN KENYA

In Kenya, with support from TB CARE I, the NTP developed an innovative web based TB program management system integrated with mobile technology—the first of its kind to be implemented in Africa. TIBU (“to treat” in Swahili) enables the TB program to easily access data for informed decision-making at all levels. It is strengthening and improving recording and reporting with real time data from the facility level up to the central unit, as well as the provision of feedback. The system is also strengthening and improving governance and accountability through the utilization of mobile money transfer to make payments for supervision and provide MDR-TB patient support.

Data is collected electronically with tablet computers and uploaded into the central database of the NTP. In addition, TIBU can be used for logistics planning of commodities and

MDR patient support. To enable integration, TIBU is also linked with the national District Health Information System for TB data sharing at the Ministerial level.

TIBU was developed through a unique partnership led by the NTP and USAID Kenya with TB CARE I and three Kenyan companies - Safaricom, Iridium Interactive and Tangazoletu. TB CARE I is the main partner working with the NTP to implement and manage TIBU. TB CARE I also provided support for improving data management quality to ensure TIBU is used to its maximum capacity.

The system is able to generate cohort and case finding reports for 2012 and the first two quarters of 2013. The project also helped integrate the supervision checklist used in the field into TIBU.

QUALITY M&E SYSTEMS

A multi-year core project to help strengthen M&E efforts in 16 countries continued in Year 3. In Year 1, a three-day in-person training was conducted and mini-M&E plans were developed and implemented in 11 of 16 participating countries. This year, a five-day follow-on training, which focused primarily on data quality was conducted in Nairobi, Kenya for NTP and project M&E officers from 16 countries. Countries again developed targeted M&E action plans, 15 of which were incorporated into country TB CARE I Year 4 work plans (or other USAID-funded project workplans) and are currently being implemented. The successes of the first phase (training & mini-M&E plans) were improved upon by timing the second training to coincide with in-country annual workplanning, ensuring more M&E action plans were adopted and integrated by country teams.

At country level, measuring data quality and providing regular feedback are becoming

more common. In Year 3, 84% of countries reported measuring some aspect of data quality compared to only 71% (15/21) in Year 2, 55% (10/18) in Year 1 and 50% (9/18) at baseline (see [Supporting Data](#)). Afghanistan and Zambia started conducting data quality assessment activities in Year 3 with TB CARE I support.



Monitoring and Evaluation team providing on-the-job training, Ghana

TB CARE I in Ghana introduced an innovative approach for conducting data validation through regional quarterly review meetings in 27 districts of Ashanti region. Districts swapped TB treatment registers to assess data accuracy. Through this process it was discovered that all 27 districts over reported their TB case finding by 6% and 13% during the first and second quarter of 2013 respectively. TB CARE I-Nigeria also conducted data quality assessments (DQA) in six states. The results indicated sub-optimal data management

at the Local Government and facility levels. The project will support the national level and states in strengthening the M&E system through integration of routine DQA into state and Local Government Areas supervision.

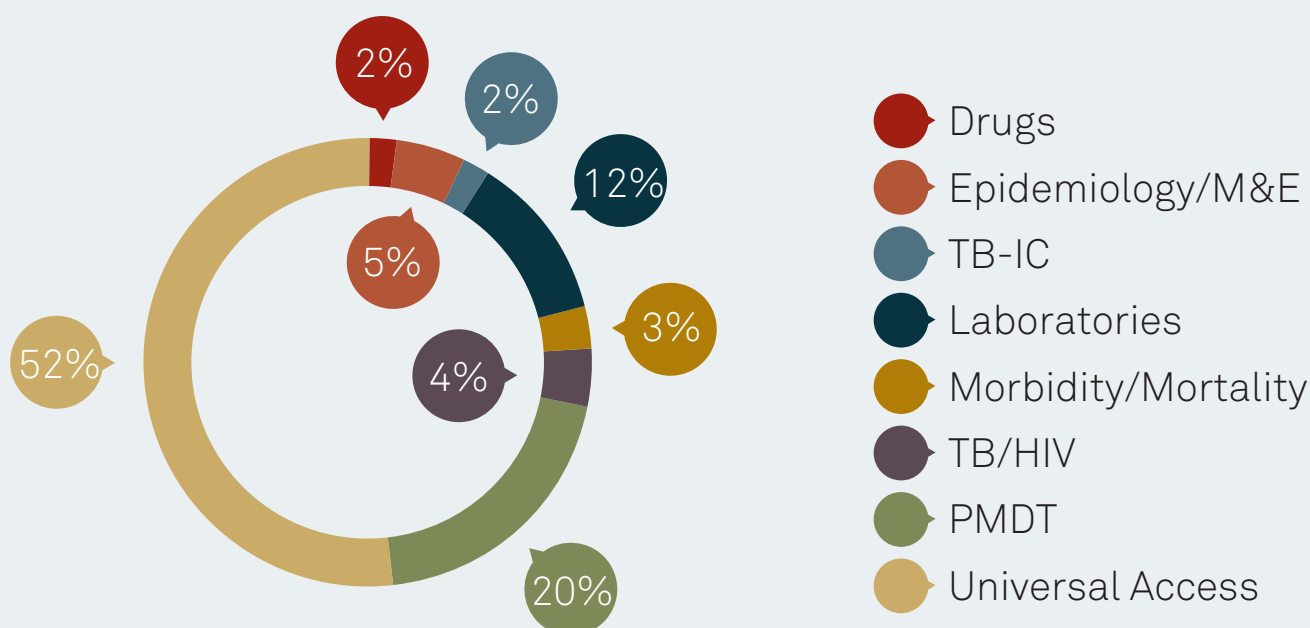
Feedback is also steadily improving with Afghanistan and Kyrgyzstan implementing new feedback processes this year (95% (18/19) of countries in Year 3, 86% (18/19) in Year 2 and 39% (7/18) at baseline and in Year 1).

OPERATIONS RESEARCH

In Year 3, TB CARE I has been involved in Operations Research (OR) in 13 countries. Since the start of the program, around 80 OR studies have been initiated, with TB CARE I's level of involvement varying from major or minor financial/technical support to full implementation of the studies. Roughly 28% (22) of all the initiated studies have been completed and 49% are ongoing or just starting up. Nineteen studies (24%) have been cancelled or are unlikely to continue due to staff limitations or the complexities of working with multiple partners.

Figure 15 shows the breakdown of all OR study topics. Over half of all OR studies fall under Universal Access. The results of nine studies have been disseminated in Year 3. Table 1 provides a brief summary of the key findings of these completed studies and how the results have been disseminated or used. TB CARE I-led workshops on OR conducted in countries such as Cambodia, Ethiopia, Indonesia, Namibia, Nigeria and Zambia contributed to the quality and the success of ORs.

Figure 15: Overview of topic areas for 61 completed or ongoing OR studies, Year 1-3*



*No OR studies are related to health system strengthening

Table 1: Completed TB CARE I-supported OR studies disseminated in Year 3

Country	Title of OR Study	Key Findings	Dissemination
Ethiopia	Survival analysis of MDR-TB patients in St. Peter's Hospital	Higher risk of death was noted in patients who started treatment more than a month after being diagnosed. Other risk factors included MDR-TB, smoking, HIV infection and having clinical complications during the treatment period.	Presented on the 8th Annual Conference of the TB Research Advisory Committee in Addis Ababa, Ethiopia, March 2013
Ethiopia	Active case finding of PTB & detection of drug resistance among PLHIV in Gondar Hospital	The prevalence of undiagnosed pulmonary TB among HIV- infected patients in Gondar was 4.4%. Active screening of known HIV-infected individuals for TB, with at least one TB symptom should be considered.	Presented at the 8th Annual Conference of the TB Research Advisory Committee in Addis Ababa, Ethiopia, March 2014
Ghana	The effectiveness of TB referral systems in the two districts of Eastern Region	During the study, 98 TB patients were referred to health facilities within the district and 18 patients were referred to health facilities outside the district. Twenty seven percent of referred TB patients (31/116) did not reach their destinations. Fourteen of the TB patients who did not reach their destination were new smear sputum smear positive TB cases.	National TB and midyear review meeting. Also disseminated to the 26 districts in Eastern and 27 districts in Ashanti region.
Mozambique	Rapid Expansion of Microscopy Study	Four years after training nursing personnel on the quality of TB sputum smear microscopy, at least half are still active while the remaining trainees are no longer active or not working in the lab-section. The main reasons for this reduction are limited supervision visits, lack of continued training opportunities, competing activities and inconsistent follow-up from district and provincial directorate of health.	Workshop.
Mozambique	Exploring individual and socio-cultural constraints to seeking TB care services in three provinces of Mozambique (Maputo, Tete and Nampula)	Within the sampled population, there was a general understanding of signs and symptoms of TB, but misunderstandings on how TB is transmitted existed.	Workshop for stakeholders took place. Workshop in Maputo: mainly designed for TB managers from CB DOTS implementing agencies and NTP; Workshop in Nampula: focused on district level supervisors and NTP staff working in health facilities.
South Sudan	Follow up study to determine the impact of interventions to address the poor referral mechanism in Juba County, South Sudan	Following the referral interventions the primary defaulter rate markedly reduced from 32% to 13%. The average enrollment time reduced from 12 days to 3.2 days.	NTP organized a meeting for TB unit healthcare workers in Juba to disseminate the findings and review the interventions to minimize the primary defaulter rate.
Viet Nam	Prescription habits for MDR (GLC and non-GLC drugs)	The success rate was significantly better in GLC patients (84.8%) than in non-GLC patients (53.7%) ($p < 0.001$). Treatment delay was significantly higher in the GLC group (12.8 days) as compared to the non-GLC group (2.3 days), ($p = 0.004$). The default rate was significantly higher in non-GLC patients than in GLC patients (25.6% vs. 6.3%), ($p < 0.001$). The risk of unsuccessful outcome was higher in non-GLC patients (Hazard ratio = 4.6, 95% CI: 1.8 – 11.8).	Presented at the 4th Conference of The Union Asia- Pacific Region in Hanoi, Viet Nam, April 2013
Viet Nam	Availability and pricing of TB drugs (First line drugs (FLD) & SLD)	In every province, private access to TB medications was possible through selected outlets. Pricing in the private sector for the lowest cost generics was 99.5% higher (approximately twice the price) of the NTP acquisition cost for first line treatment. The highest priced generic products were 250% higher than the NTP acquisition price (3.5 times the price).	Presented on the 4th Conference of The Union Asia- Pacific Region in Hanoi, Viet Nam, April 2013
Zimbabwe	What is the extent of TB treatment delay and the associated patient and health system factors under the Zimbabwe National TB program?	Patient delays were high (28 days); Taking of self-medication for TB-related symptoms also contributed to delays in seeking treatment. Patient delays were higher in those seeking treatment from rural health facilities.	National TB and provincial review meetings

PREVALENCE AND DRUG RESISTANCE SURVEYS

In Year 3, TB CARE I supported the implementation of TB prevalence surveys in five countries: Ghana, Indonesia, Kenya, Uganda and Zambia. Support ranged from procurement of supplies to TA and data analysis. By the end of Year 3 the final report of the [Pakistan Prevalence Survey](#) was published by the MoH and TB CARE I (KNCV); it can be found on the TB CARE I website.

In Indonesia, with support from the project, the National TB Prevalence Survey methods and tools were piloted in selected clusters. TB CARE I provided TA and supported the preparation of the laboratories and the procurement of equipment and supplies. So far, 38 out of 156 (24%) clusters have been completed.

Drug resistance surveys were also completed and supported by TB CARE I in Ethiopia, Indonesia and Mozambique. As a part of the integrated TB CARE I TB/Malaria workplan, the study in Mozambique examined the drug efficacy in children of the anti-malarial drug combinations, Artemether-Lumefantrine and Artesunate-Amodiaquine.



Household being surveyed in the ongoing Prevalence Survey - Ghana

TECHNOLOGY AND INNOVATION

In Year 2, TB CARE I completed the piloting of an innovative approach to map and link human resources (HR) data to TB data in Ethiopia. Program managers were able to see relationships among TB case distribution, HR capacity, laboratory services, health facilities, and population density within the five piloted districts. The geographic information system (GIS) maps helped the district TB teams and the provincial health bureau identify health facilities and areas where deficiencies existed and develop targeted action plans to improve service quality.

In Cambodia, the TB CARE I-pilot SMS alert system to deliver results of sputum smears was expanded to cover all 38 health centers and TB laboratories in two districts. The

average turnaround time from the day the health center sends the sputum smear to the lab, to the day results are returned decreased to four days (range: 0-15 days) in 2013 compared to seven days in 2012. Ninety-eight percent of lab results were returned to the health centers. In addition, a new SMS system enabling public health facility staff to provide feedback on patients referred by private providers was introduced.

DRUG SUPPLY AND MANAGEMENT

OUR AIM

To ensure nationwide systems for a sustainable supply of drugs

- 8 TB CARE I Countries Work on Drug Supply and Management
- 250 People Trained in Year 3 (131 Males/119 Females)

National forecasts for first and second line drugs for next year have been conducted in all TB CARE I countries. During the year no country experienced shortages of SLDs.

In Mozambique, the project supported the NTP to conduct not only a forecasting and quantification exercise but also financial gap analysis of the budget required to cover adequate TB medicines through 2015. The NTP can now adequately plan for and address the identified gaps.

Similar to last year, 68% (13/19) of countries have updated Standard Operating Procedures (SOPs) for selection, quantification, procurement, and management of TB medicines. Although a few countries have SOPs that require updating (Viet Nam and Namibia), South Sudan and Tajikistan have newly developed SOPs that are now in use.

In Indonesia, TB CARE I assisted with the



Checking drug supplies at a TB center, Kyrgyzstan

development of the \$11 million Procurement and Supply Management (PSM) Plan for Global Fund Phase 2. In Viet Nam, TB CARE I provided assistance to the NTP to develop a PSM assessment tool to measure and track its compliance with WHO good practices for procurement, storage and distribution. This tool can be used regularly to assess the current status of TB pharmaceutical supply chain management activity in Viet Nam.

KNOWLEDGE MANAGEMENT

TB CARE I takes pride in making its policy documents and tools available to as wide an audience as possible. Below is a list of tools or publications that have been developed and released in Year 3, all of which can be found on the TB CARE I website (www.tbcare1.org):

GUIDELINES ON TB CONTACT INVESTIGATION



These recommendations are designed to assist national and local public health TB control programs in low- and middle-income countries to develop and implement case finding among people exposed to infectious cases of TB.

http://www.tbcare1.org/publications/toolbox/tools/hss/Guidelines_on_TB_Contact_Investigation.pdf

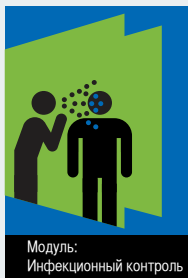
BUILDING THE CAPACITY OF CIVIL SOCIETY ORGANIZATIONS IN TB CONTROL - AN APPROACH



An approach to develop the capacity of civil society organizations in TB Control has been developed and pilot tested in three countries; this package includes the approach, the training materials, the monitoring and evaluation framework, and the results.

http://www.tbcare1.org/publications/toolbox/tools/hss/Capacity_Building_Approach.zip

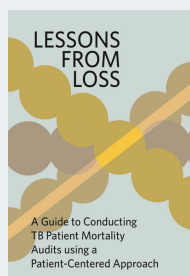
INFECTION CONTROL MODULE - RUSSIAN (МОДУЛЬ - ИНФЕКЦИОННЫЙ КОНТРОЛЬ)



This module is aimed at healthcare workers who work in TB facilities and/or with TB patients. The purpose of this module is to improve knowledge on TB infection control.

http://www.tbcare1.org/publications/toolbox/tools/ic/Module_IC_Russian.pdf

LESSONS FROM LOSS - A GUIDE TO CONDUCTING TB PATIENT MORTALITY AUDITS USING A PATIENT-CENTERED APPROACH



This tool is designed to collect information on factors leading to mortality among TB patients in order to help health professionals, planners, TB program managers and TB advocates to save TB patients' lives by improving care seeking behaviour and the quality of care. The tool offers step-by-step guidance on how to pinpoint where the problems lie and to build consensus toward feasible solutions.

http://www.tbcare1.org/publications/toolbox/tools/hss/Lessons_from_Loss.pdf

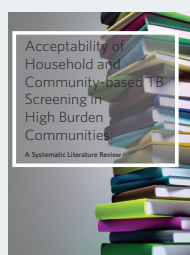
FOTOVOICES (SPANISH)



This is an instrument for advocacy, stigma reduction and patient empowerment. Using images, TB is given a human face, the aim being to improve services for people affected by TB, contribute to stigma reduction and discrimination caused by TB and empower patients, strengthening their self esteem through the process of coaching and the production of a photo exhibition and its dissemination.

<http://www.tbcare1.org/publications/toolbox/tools/hss/Fotovoces.pdf>

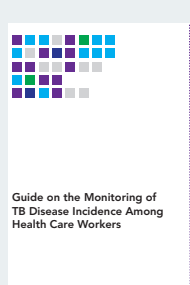
ACCEPTABILITY OF HOUSEHOLD AND COMMUNITY-BASED TB SCREENING IN HIGH BURDEN COMMUNITIES: A SYSTEMATIC LITERATURE REVIEW



A systematic literature review, which addresses the question: 'What is the acceptability of community- based or mass TB screening in non-health care settings as compared with passive case finding in settings with an estimated prevalence of all forms of TB above 100/100,000 in the 2000-2011 period?'

http://www.tbcare1.org/publications/toolbox/tools/access/Acceptability_of_Household_and_Community-_based_TB_Screening.pdf

GUIDE ON THE MONITORING OF TB DISEASE INCIDENCE AMONG HEALTH CARE WORKERS



This guide for monitoring the incidence of TB disease among healthcare workers addresses issues such as stigma and work discrimination, and also provides practical recommendations on how to establish an effective monitoring system. This document is the result of years of operations research as well as debates and discussions organized by the WHO and TB CARE partners.

http://www.tbcare1.org/publications/toolbox/tools/hss/HCW_TB_Incidence_Measuring_Guide.pdf

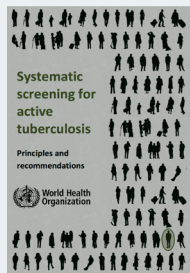
A PRACTICAL HANDBOOK FOR NATIONAL TB LABORATORY STRATEGIC PLAN DEVELOPMENT



This handbook is designed to guide simplified steps for national TB control program's to develop a TB-specific national laboratory strategic plan. It draws upon 'Guidance for Development of National Laboratory Strategic Plans: Helping to expand sustainable quality testing to improve the care and treatment of people infected with and affected by HIV/AIDS, TB and Malaria' and from the Global Laboratory Initiative's 'Roadmap for ensuring quality tuberculosis diagnostics services within national laboratory strategic plans'.

http://www.tbcare1.org/publications/toolbox/tools/lab/Laboratory_Strategic_Handbook.zip

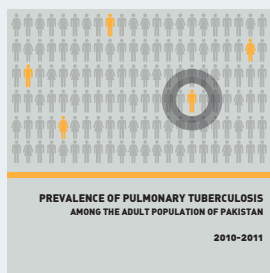
SYSTEMATIC SCREENING FOR ACTIVE TUBERCULOSIS: PRINCIPLES AND RECOMMENDATIONS



This document sets out basic principles for prioritizing risk groups and choosing a screening approach. It also emphasizes the importance of assessing the epidemiological situation, adapting approaches to local situations, integrating TB screening into other health-promotion activities, minimizing the risk of harm to individuals, and engaging in continual monitoring and evaluation. It calls for more and better research to assess the impact of screening and to develop and evaluate new screening tests and approaches.

http://www.tbcare1.org/publications/toolbox/tools/hss/Systematic_Screening_for_Active_Tuberculosis.pdf

PAKISTAN PREVALENCE SURVEY REPORT



This report documents the recently conducted TB prevalence survey carried out in Pakistan which revealed a burden of TB of 321 per 100,000 population (95% Confidence Interval of 269-373/100,000); this was the second largest survey ever conducted, and not only gives the prevalence but a lot of other information, which can help the Pakistan NTP in developing its Universal Access strategies.

http://www.tbcare1.org/reports/reports/Prevalence_of_Pulmonary_TB_Pakistan.zip

TB CARE I NEWSLETTER



The fourth newsletter from TB CARE I, highlighting news, new projects, success stories, achievements and more.

http://www.tbcare1.org/publications/toolbox/recent/TB_CARE_Newsletter_June_2013.pdf

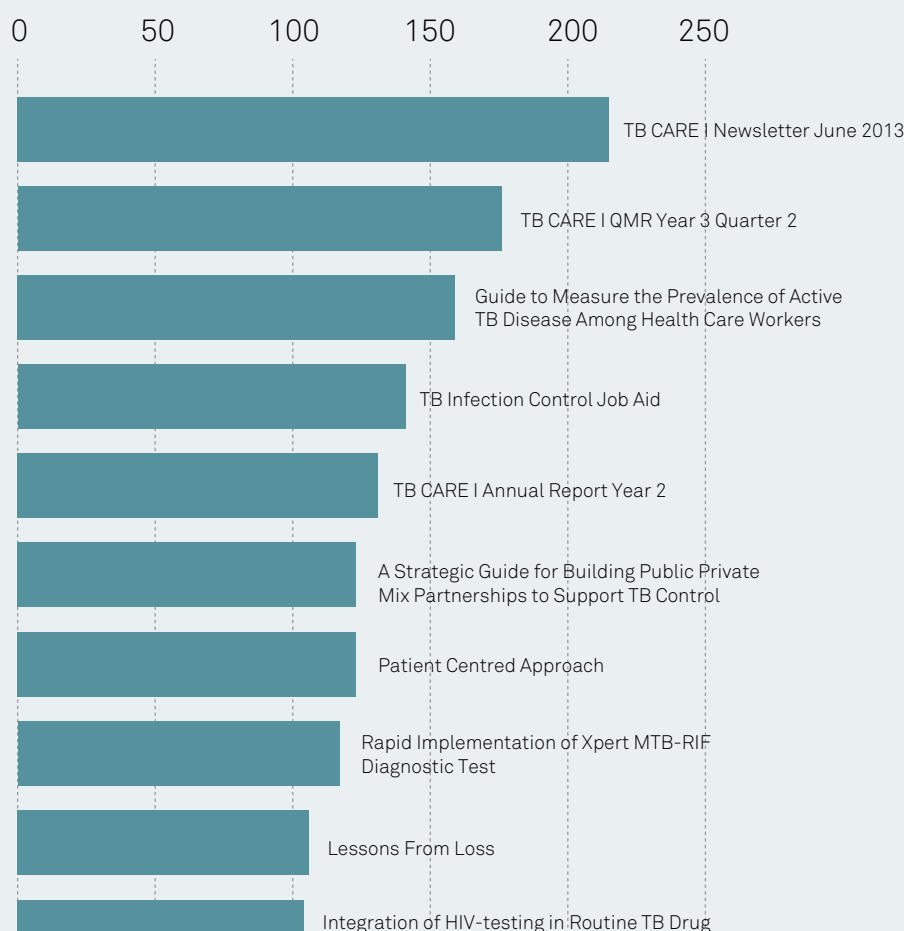
TB CARE I WEBSITE

The TB CARE I website has shown a dramatic increase in traction over the past year, with visits for the year at 18,987, up by 66% over Year 2. The number of pages viewed was 43,990 and more than 6900 documents were downloaded, up 82%.

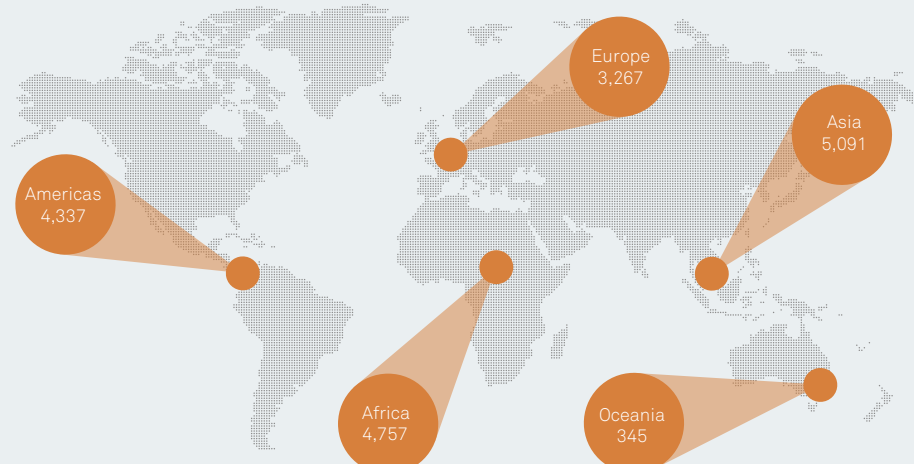
NUMBER OF VISITORS



TOP TEN DOWNLOADED PUBLICATIONS



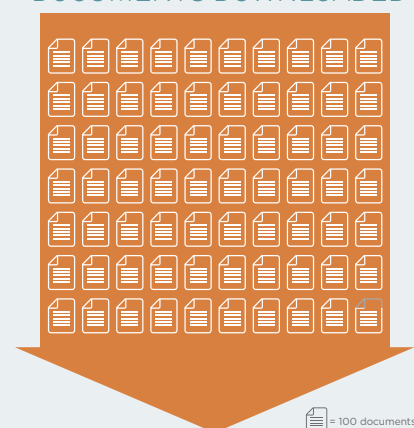
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TB CARE I

We would like to acknowledge all the people across the world who make TB CARE I possible; our gratitude and thanks go out to all our partners and everyone in the field.

Cover and Report Design & Layout by Tristan Bayly

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SUPPORTING DATA

TB CARE I ANNUAL REPORT YEAR 3

Molière

Paul
Laurence
Dunbar

Takuboku
Ishikawa

D. H
Lawrence

Emily
Brontë

Franz
Kafka

John
Keats

Voltaire

Manuel
Bandeira

Baruch
Spinoza

George
Orwell

Saima
Harmaja

Anton
Chekov



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TB CARE I

Table 1: Number of cases notified (all forms and new confirmed) and percentage male of new confirmed cases, 2010-2012 (WHO 2013)

TB CARE I Country	2010			2011			2012		
	All Forms	New confirmed	% Male (New Confirmed)	All Forms	New Confirmed	% Male (New Confirmed)	All Forms	New Confirmed	% Male (New Confirmed)
Indonesia	302,861	183,366	60%	321,308	197,797	59%	331,424	202,319	59%
Ethiopia	156,928	46,634	56%	159,017	49,594	56%	147,592	47,236	U
Vietnam	96,441	52,145	74%	100,518	50,751	75%	103,906	51,033	75%
Kenya	106,083	36,260	61%	103,981	37,085	62%	99,149	36,937	62%
Nigeria	90,447	45,416	61%	93,050	47,436	61%	97,853	52,901	61%
Mozambique	46,174	20,097	0%	47,452	19,537	0%	50,827	20,951	U
Uganda	45,546	23,456	64%	49,018	25,614	64%	47,211	24,916	65%
Zambia	48,616	12,639	0%	48,594	12,046	62%	45,277	12,645	63%
Cambodia	41,628	17,454	54%	39,670	15,812	54%	39,156	14,838	56%
Zimbabwe	47,557	11,654	52%	41,305	12,596	55%	38,720	12,163	56%
Afghanistan	28,238	12,947	33%	28,167	13,789	34%	29,578	13,319	33%
Kazakhstan	24,854	4,769	61%	20,365	4,157	64%	21,523	3,884	62%
Uzbekistan	20,330	4,711	57%	15,069	4,198	56%	16,765	4,030	57%
Ghana	15,145	7,656	67%	15,840	7,616	65%	15,207	7,097	68%
Namibia	12,625	4,464	56%	11,938	4,503	56%	11,145	4,333	58%
South Sudan				7,583	2,797	62%	8,924	3,120	67%
Kyrgyzstan	6,295	1,645	59%	6,215	1,537	59%	6,916	1,594	61%
Tajikistan	6,944	2,290	56%	6,864	2,174	54%	6,232	2,041	55%
Botswana	7,632	3,295	56%	6,733	2,669	56%	6,223	2,426	54%
Dominican Republic	4,160	2,159	61%	4,472	2,454	62%	4,440	2,483	63%
Djibouti	4,191	1,181	65%	3,723	1,336	63%	3,546	1,170	66%
Grand Total	1,112,695	494,238	56% (total #: 277,946)	1,130,882	515,498	58% (total #: 299,473)	1,131,614	521,436	53% (total #: 277,209)

Table 2: Treatment Success Rate and successful treatment* of smear-positive TB cases, 2009-2011 (WHO 2013)

TB CARE I Country	2009		2010		2011	
	# SS+ Successfully Treated	TSR (SS+) %	# SS+ Successfully Treated	TSR (SS+) %	# SS+ Successfully Treated	TSR (SS+) %
Cambodia	16,974	95	16,389	94	14,851	93
Vietnam	47,500	92	48,149	92	47,063	93
Afghanistan	10,806	86	11,621	90	12,601	91
Ethiopia	37,680	84	38,484	83	37,158	90
Indonesia	154,294	91	165,564	90	178,322	90
Kenya	32,112	86	31,606	87	32,382	88
Zambia	11,760	90	11,307	86	11,134	88
Ghana	7,178	87	6,549	86	6,568	86
Nigeria	37,048	83	37,978	84	40,555	85
Namibia	4,010	85	3,859	85	3,799	84
Dominican Republic	2,082	85	1,755	80	2,042	83
Djibouti	1,007	79	938	80	1,094	82
Botswana	2,772	79	2,698	81	2,532	81
Zimbabwe	7,999	78	9,493	81	10,203	81
Tajikistan	1,604	81	1,834	80	1,732	80
Kyrgyzstan	1,272	82	0		1,201	78
Uzbekistan	4,037	81	3,819	81	3,291	78
Uganda	15,556	67	16,673	71	19,846	77
Kazakhstan	3,341	62	2,995	61	2,641	61
Mozambique	16,647	85	17,075	85	0	
South Sudan			1,588	75	2,017	
Grand Total	415,679	87%	430,374	87%	431,032	88%

*Successfully treated includes both SS+ cases that have been cured and those that have completed treatment.

Table 3: Number (and rate per 100,000) of confirmed TB cases among HCWs, 2010-2012 (WHO 2013)

TB CARE I Country	2010	2011	2012	
	# of HCWs reported w/ TB	# of HCWs Reported w/ TB	# of HCWs Reported w/ TB	Rate of HCWs Reported w/ TB per 100,000
Kenya	36	134	232	200
Uzbekistan	138	180	131	30
Mozambique	19		117	
Botswana			37	
Kazakhstan	139		35	200
Kyrgyzstan		42	23	30
Tajikistan		24	22	30
Ghana	0	11	21	
Dominican Republic	12	0		
Namibia	3			
Grand Total	347	391	618	

Table 4: Number of MDR-TB patients diagnosed (confirmed) and started treatment for MDR- TB (un-confirmed and confirmed) (WHO 2013)

TB CARE I Country	2010		2011		2012	
	Diagnosed	Started on Treatment	Diagnosed	Started on Treatment	Diagnosed	Started on Treatment
Kazakhstan	7,387	5,705	7,408	5,261	7,608	7,213
Uzbekistan	1,023	628	1,385	855	1,728	1,491
Kyrgyzstan	566	566	806	492	958	775
Vietnam	101	101	601	578	273	713
Tajikistan	333	245	604	380	694	535
Indonesia	182	142	383	260	428	426
Ethiopia	140	120	212	199	284	289
Namibia	214	214	192	242	210	288
Mozambique	165	87	283	146	266	213
Kenya	112	118	166	156	225	202
Nigeria	21	23	95	38	107	125
Cambodia	31	38	56	57	75	110
Dominican Republic	108	114	117	107	92	109
Zimbabwe	17	27	118	64	149	105
Zambia		0		0	80	97
Djibouti		7	0	0	96	65
Botswana	106	114	46	46	53	58
Uganda	93	10	71	7	89	41
Afghanistan	19	0	19	21	31	38
Ghana	4	3	7	2	20	2
South Sudan			6	0	3	0
Grand Total	10,622	8,262	12,575	8,911	13,469	12,895

Figure 1: Number of health facilities where quality of services is measured

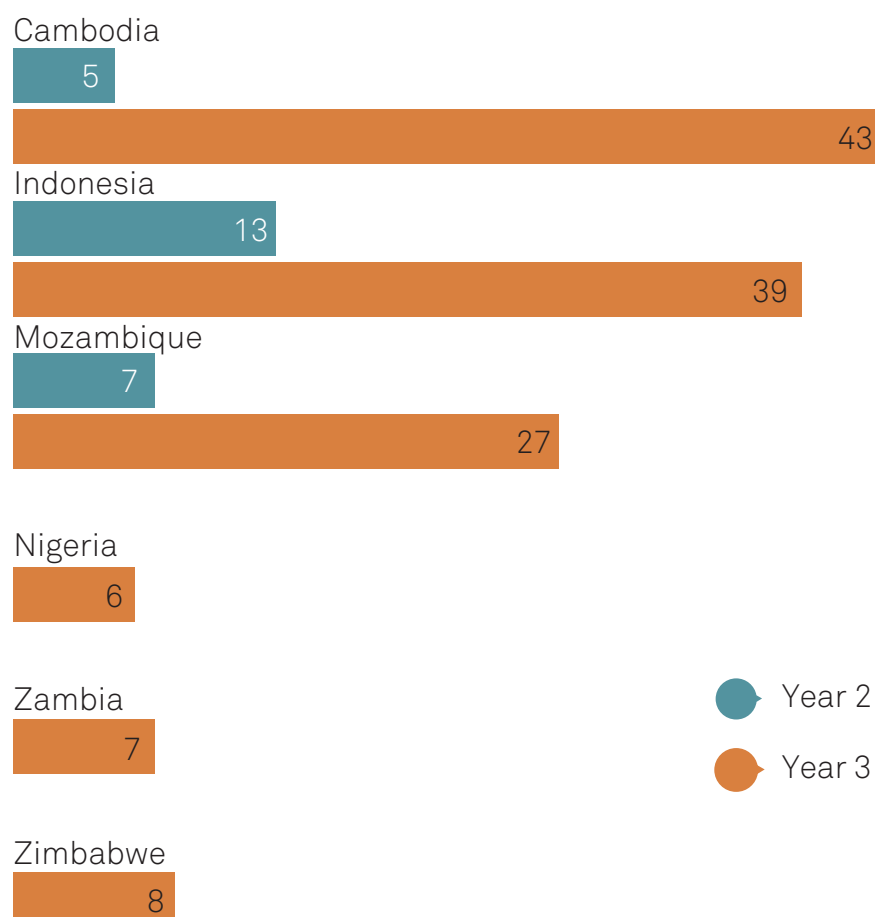


Table 5: Summary of TB CARE I GeneXpert investment and procurements to date (Year 1-3)*

TB CARE I Country	Investment		Operational GeneXpert Instruments		
	Investment in GeneXpert Implementation	Type of TB CARE I Investment	# of Operational Instruments (National Level)	# of Operational Instruments (TB CARE I)	National Coverage Procurement (%)
Nigeria	YES	P/TA	45	23	51%
Indonesia	YES	P/TA	17	17	100%
Vietnam	YES	P/TA	27	17	63%
Kazakhstan	YES	P/TA	16	4	25%
Cambodia	YES	P/TA	11	3	27%
Ethiopia	YES	P/TA	8	3	38%
Kenya	YES	P/TA	22	3	14%
Mozambique	YES	P/TA	12	3	25%
Zimbabwe	YES	P/TA	35	3	9%
Djibouti	YES	P/TA	1	1	100%
Tajikistan	YES	P/TA*	11	1	9%
Afghanistan	NO	N/A	-	0	N/A
Botswana	YES	TA	20	0	0%
Dominican Republic	NO	N/A	-	0	N/A
Ghana	YES	TA	6	0	0%
Kyrgyzstan	YES	TA	7	0	0%
Namibia	NO	N/A	4	0	N/A
South Sudan	NO	N/A	0	0	N/A
Uganda	NO	N/A	42	0	N/A
Uzbekistan	YES	TA	5	0	0%
Zambia	YES	P/TA	8	0	0%
TOTAL	16		297	78	26%

*P = procurement of GeneXpert machines and cartridges, TA=technical assistance. *Tajikistan project has taken over the management of one machine from another USAID-funded project.

Table 6: Successful Xpert MTB/RIF tests and cases detected in Year 1 and 2 (combined) and Year 3 (not cumulative) for TB CARE I supported instruments*

TB CARE I Country	Year 1 and 2			Year 3		
	Total # Successful Tests	Total NC Detected	Total RR TB Cases Detected	Total # Successful Tests	Total NC Detected	Total RR TB Cases Detected
Djibouti	136	N/A	17	N/A	-	-
Kazakhstan	775	5	194	6,954	N/A	1,357
Vietnam	1,164	40	209	5,121	225	792
Indonesia	831	75	225	3,678	260	743
Nigeria	1,932	39	201	8,640	283	515
Mozambique	0	-	-	1,269	N/A	73
Cambodia	2,349	400	125	2,156	201	63
Zimbabwe	0	-	-	1,153	N/A	31
Ethiopia	0	-	-	133	NA/	17
Tajikistan	0			287	36	17
Kenya	1,085	53	23	797	18	15
TOTAL	8,272	612	994	30,188	1,023	3,623

*Total RR TB cases are calculated from Xpert Rif-resistant test results among presumptive new and presumptive MDR-TB cases; total new cases (NC) are calculated from the number of Xpert MTB positive test results among presumptive new TB cases only. The numbers of NC and RR TB cases are a simplification from the obtained Xpert lab results, i.e. patients, which were tested twice with Xpert would appear twice in this statistics. N/A: Country does not record a stratification according to suspect group.

Table 7: Ndola demonstration project work practice compliance rates by facility (baseline and end line) and improvement in scoring between baseline and end line

Name facility	Baseline (Jan 2012)	Endline (Sept 2013)	Improvement in Scoring
ADCH	30	78	48
C. Mayamba	19	84	65
Chipulukusu	33	84	51
Kabushi	41	88	47
Kaloko	4	84	80
Kansenshi	12	84	72
Kavu	44	84	40
Kawama	19	84	65
Lubuto	45	75	30
Mushili	15	84	69
New Masala	37	88	51
NCH	30	40	10
Railway	19	84	65
Twapia	41	88	47
ZFDS	1	88	87
Average	27	81	54

Table 8: Number of confirmed MDR-TB cases started on treatment and number that completed treatment successfully (2009-2010) (WHO 2013)*

TB CARE I country	2009			2010		
	# MDR-TB Treated Successfully	# Confirmed Started on Treatment	% of registered cohort successfully treated	# MDR-TB Treated Successfully	# Confirmed Started on Treatment	% of registered cohort successfully treated
Uganda	1	1	100%	9	10	90%
Ethiopia	66	73	90%	96	114	84%
Kenya	61	89	69%	79	96	82%
Viet Nam	74	101	73%	76	97	78%
Kazakhstan	2,851	3,897	73%	4,197	5,777	73%
Indonesia	14	19	74%	101	140	72%
Dominican Republic	52	93	56%	69	101	68%
Cambodia	36	46	78%	21	31	68%
Zimbabwe	1	1	100%	4	6	67%
Botswana	77	105	73%	92	146	63%
Tajikistan	37	52	71%	151	245	62%
Nigeria	0			14	23	61%
Uzbekistan	285	464	61%	366	628	58%
Namibia	115	275	42%	125	216	58%
Kyrgyzstan	193	545	35%	236	556	42%
Zambia	0			20	56	36%
Ghana	0	0		1	3	33%
Mozambique	0	137	0%	8	28	29%
Afghanistan						
Djibouti						
South Sudan						
Grand Total	3,863	5,898	65%	5,665	8,273	68%

* Successfully treated includes 'cured' and 'completed treatment'

Table 9: Number and percent of TB patients with an HIV test result recorded in the TB register, 2010-2012 (WHO 2013) *Countries with specific TB CARE I support (moderate or substantial) are highlighted in bold.*

TB CARE I country	2010		2011		2012	
	#	%	#	%	#	%
Tajikistan	4,049	58%	6,241	91%	6,375	102%
Uzbekistan	20,330	100%	15,913	106%	16,810	100%
Kyrgyzstan	183	3%	153	2%	6,916	100%
Zambia	40,704	84%	41,701	86%	45,269	100%
Kazakhstan	23,854	96%	22,480	97%	21,184	98%
Botswana	6,147	81%	5,369	80%	5,940	95%
Mozambique	40,554	88%	41,896	88%	47,960	94%
Kenya	96,930	91%	97,136	93%	92,890	94%
Namibia	9,534	76%	10,042	84%	9,927	89%
Zimbabwe	41,062	86%	35,361	86%	34,212	88%
Uganda	36,742	81%	39,394	80%	40,581	86%
Nigeria	71,844	79%	75,772	81%	82,641	84%
Cambodia	32,236	77%	32,544	82%	32,359	83%
Ghana	10,147	67%	12,587	79%	11,825	78%
Viet Nam	42,356	44%	59,176	59%	68,259	66%
Ethiopia	66,955	43%	65,140	41%	96,245	65%
Dominican Republic	2,489	60%	2,540	57%	2,721	61%
South Sudan			3,570	47%	4,584	51%
Djibouti	2,163	52%	1,274	34%	1,289	36%
Afghanistan	5,170	18%	6,445	23%	7,275	25%
Indonesia	2,751	1%	3,511	1%	2,676	1%
Grand Total	556,200	50% (of 1,112,695)	578,245	51% (of 1,133,632)	637,938	56% (of 1,131,614)

Table 10: Number and percent HIV-positive TB patients started or continued on ART, 2010- 2012 (WHO 2013) *Countries with specific TB CARE I support (moderate or substantial) are highlighted in bold.*

TB CARE I Country	2010		2011		2012	
	#	%	#	%	#	%
Afghanistan	2	100%	4	80%	5	100%
Tajikistan	54	54%	66	57%	78	89%
Cambodia	944	45%	1,306	79%	1,268	88%
Ethiopia	3,823	39%	2,123	39%	8,022	82%
Kyrgyzstan	68	37%	131	86%	118	78%
Kenya	19,331	48%	24,497	64%	26,487	74%
Namibia	2,294	44%	2,700	54%	3,362	72%
Botswana	1,720	43%	2,206	53%	2,450	65%
Djibouti	27	11%	39	22%	83	64%
Zambia	12,646	48%	14,213	53%	14,471	60%
Kazakhstan	25	8%	32	9%	256	58%
Nigeria	5,902	33%	8,410	43%	10,866	56%
Mozambique	6,250	25%	7,661	29%	15,391	55%
Uganda	4,782	24%	6,720	32%	9,962	49%
Dominican Republic	21	4%	430	93%	268	48%
Vietnam	1,497	43%	2,258	48%	2,232	47%
Ghana	487	18%	812	28%	1,033	37%
Indonesia	325	29%	990	39%	221	29%
South Sudan			115	27%	147	28%
Zimbabwe	14,223	45%	16,577	60%	4,419	18%
Uzbekistan	157	37%	172	32%	103	13%
Grand Total	74,578	39% of 190,938	91,462	51% of 179,593	101,242	55% of 182,566

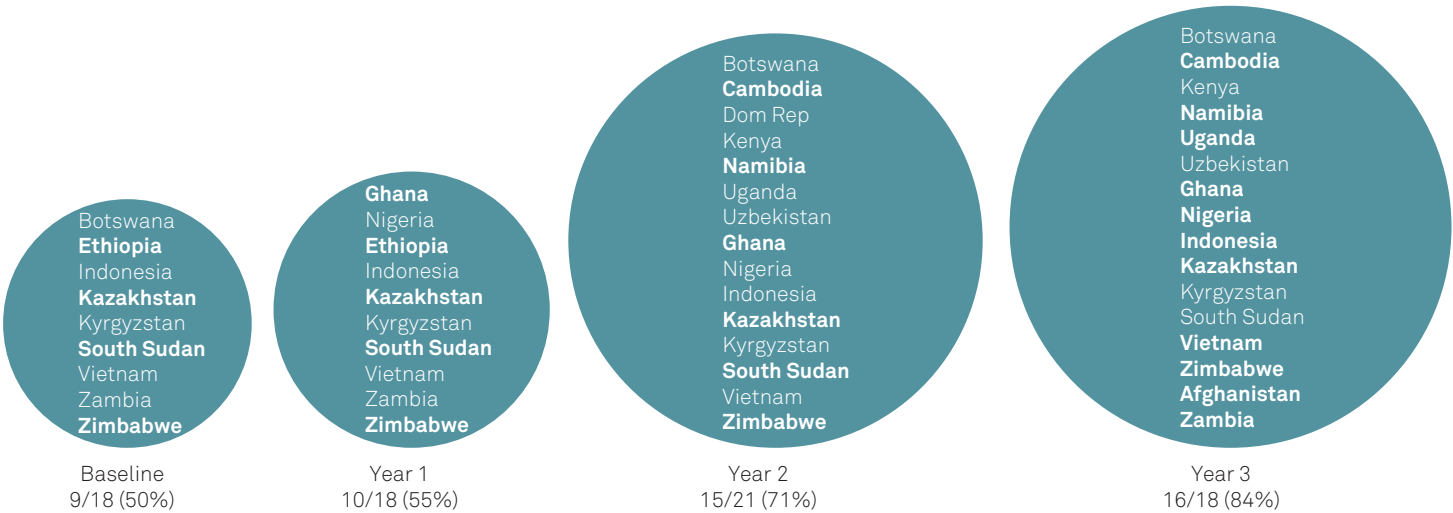
Table 11: Number and percent HIV-positive TB patients started or continued on CPT, 2010- 2012 (WHO 2013) *Countries with specific TB CARE I support (moderate or substantial) are highlighted in bold.*

TB CARE I Country	2010		2011		2012	
	#	%	#	%	#	%
Afghanistan	2	100%	4	80%	5	100%
Mozambique	4,869	93%	4,885	98%	4656	99%
Cambodia	1,383	65%	1,456	88%	1410	98%
Zambia	39,952	100%	37,147	97%	35025	98%
Nigeria	23,738	97%	24,095	91%	27319	98%
Indonesia	394	92%	525	96%	779	95%
Ghana	17,855	90%	19,258	93%	19163	94%
Zimbabwe	19,845	75%	23,144	87%	22614	93%
Tajikistan	3,172	79%	2,816	82%	3374	90%
Uganda	10,415	59%	13,301	68%	15565	80%
Vietnam	73	73%	81	70%	70	80%
South Sudan	2,179	62%	3,396	72%	3486	73%
Namibia	2,065	77%	2,085	71%	2029	72%
Kyrgyzstan	43	8%	265	41%	386	69%
Kazakhstan	125	68%	79		101	67%
Dominican Republic			403	85%	332	62%
Kenya	6,723	69%	3,348	62%	3619	37%
Uzbekistan	27,902	88%	6,203	29%	6301	26%
Botswana	693	63%	1,182	92%	133	18%
Djibouti	85	26%	70	20%	71	16%
Ethiopia	0	0%		0%		0%
Grand Total	161,513	85% of 190,938	143,743	80% of 179,593	146,438	80% of 182,566

Table 13: Number individuals trained with TB CARE I funds in Year 3 compared to number of planned trainees, stratified by gender and technical area*

Technical area	Year 3				
	# Trained Males	# Trained Females	Total # Trained	Total # Planned for Training	% Completion
Universal Access	3,437	2,299	5,736	4,099	140%
Laboratories	1,321	949	2,270	1,642	138%
TB IC	853	888	2,058	1,855	111%
PMDT	700	707	1,407	1,248	113%
TB/HIV	327	376	703	686	102%
HSS	616	649	1,347	1,386	97%
M&E	2,080	386	2,466	3,215	77%
Drug Supply & Management	131	119	314	507	62%
Other	88	25	113	106	107%
Core-funded	140	103	243		
Region-funded	59	14	73		
Grand Total	9,693	6,501	16,730	14,744	113%

Figure 2: Countries that have measured data quality in the last year, Baseline - Year 3
Countries with specific TB CARE I support in Year 3 are highlighted in bold (support also provided in Mozambique).



TB CARE I

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